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Products, News & Information Data Centers Can Trust. Since 1979

In This Issue...

FEATURE PACKAGE

Future-Proofing Your Data Center

What do you need to make sure your data center is ready for future demands and changes in storage, networking, power, and other areas? We talked with some insiders to find out.



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PHYSICAL INFRASTRUCTURE

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■ Sensaphone's IMS-4000 **enterprise monitoring system** is based on a 1U host unit that can be expanded with nodes for additional wired or new wireless sensorspage 13

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SECURITY

■ Recent research confirms what many have suspected for a long time: **Smartphones are ripe for cyber attacks**. There are other inherent security risks, as well, such as losing phones that hold sensitive data and infected apps page 1

SERVERS

■ We interviewed Guro Rao, an IBM Fellow and chief systems engineer for the IBM Systems & Technology Group, about how **IBM has helped to evolve the world of IT**, as well as where the company believes the data center is heading in the future..... page 26

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How Virtualization & The Cloud Impact Environmental Monitoring

New Challenges Await Data Centers Deploying These Innovative Technologies

AS DATA CENTERS CONTINUE to reap the performance and cost-saving benefits of virtualization and cloud technologies, data center managers find themselves grappling with environmental issues created by increased demands on infrastructure. In turn, challenges around monitoring quickly become apparent as conventional methods can show their age when confronted with these newer technologies.

“As we continue to see an increase in virtualization and cloud computing adoption, monitoring the conditions in the data center will also become increasingly more important,” says Brett Femrite, sales manager for Rackmount Solutions (www.rackmountsolutions.net). On the flip side, cloud computing and virtualization can also actually aid in environmental

- Key Points
- Spikes in heat can be more prevalent in virtualized environments, where equipment is typically working harder than it would be in non-virtualized data centers.
 - The cloud has given data center managers the ability to monitor their environments from remote locations with full control through alerts and the ability to make on-the-fly changes.
 - State-of-the-art environmental sensors can help target problem areas in equipment running virtualization or cloud technologies.

monitoring by providing data centers with more flexibility and options.



Virtual Variances

The influx of virtualization into today's data centers is undeniable, thanks to the technology's ability to make the most out of existing hardware. According to Dave Ruede, vice president of marketing at Temperature@lert (www.temperaturealert.com), whether virtualization is used in network, storage, or server varieties, in all cases hardware is commonly being asked to perform more than one task at a time—that is, run a virtual operating system on a computer already running a primary operating system.

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Knowledge Is Power

Educate Employees About Mobile Phone Security Before Problems Set In

RECENT RESEARCH CONFIRMS what many have suspected for a long time: Smartphones are ripe for cyberattacks. There are other inherent security risks, as well, such as losing phones that hold sensitive data, infected apps, and the ease with which users' whereabouts can be tracked through GPS.

The bigger problem is that too many smartphone users either don't understand the risks or simply believe that their phones are impervious to attack. Being unaware or unconcerned about security issues when using a personal smartphone is bad enough, but today many phone owners are using their personal

smartphones for business. Even when the company provides smartphones for work use, employees have been known to use them for matters totally unrelated to their job duties.

With the smartphone, the lines between corporate and personal have become very blurred. This phenomenon may have begun when companies allowed employees to use business-owned laptops outside the office, but Patrick Luce, director of consultative services at Vector Resources (www.vectorusa.com), says there is a major difference between the two. “A lot of companies have a good read on laptop security

Go to Page 12

- Key Points
- Smartphone users may not be aware of the security risks that exist, or they may simply assume that their phones are safe from attacks.
 - Establish policies that outline proper usage and security measures and then communicate those policies to employees.
 - Seminars, knowledge bases, and regular email tips are effective means of communication and education.

Is locating your data center assets like finding a “server in a haystack?”



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|------------------|-------------------------------------|------------------|-------------------------------------|
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Comparing & Contrasting PC Sales Reports

Two of the major IT research groups released their second-quarter worldwide PC sales reports recently. Results were similar, with both research groups indicating there are signs of good sales ahead for the PC market.

Gartner: Still In A Period Of ADJUSTMENT

“The market is shifting to modest, but steady, growth,” says Mikako Kitagawa, Gartner principal analyst. “The slow overall growth indicates that the PC market is still in a period of adjustment, which began in the second half of 2010.”

Vendors are facing a number of issues, Kitagawa says, including significant inventory buildup, changes to product mixes, growth in emerging markets, and the need to shift resources from mature consumer markets.

Gartner’s Top 5 Vendors

| Vendor | Year-Over-Year Growth |
|--------|-----------------------|
| HP | 3% |
| Dell | 3.3% |
| Lenovo | 22.5% |
| Acer | -20.4% |
| Asus | 3.7% |



IDC: CAUTIOUS Spending Still Reigns

Worldwide PC shipments were up 2.6% during the second quarter, IDC says, with the United States and Western Europe among the weaker regions. “These preliminary results continue to reflect pressure from competing consumer and business products as well as cautious spending,” says Jay Chou, IDC senior research analyst.

In the United States, the PC market is contracting in part because of softening demand from corporate buyers, says IDC research analyst Rajani Singh. The second half of this year should show “mid-single-digit growth rates,” Singh says.

IDC’s Top 5 Vendors

| Vendor | Year-Over-Year Growth |
|--------|-----------------------|
| HP | 3% |
| Dell | 2.8% |
| Lenovo | 22.9% |
| Acer | -10.1% |
| Asus | 6% |

GE Pushes For Holographic Discs

GE announced that it is moving forward with plans to introduce 500GB holographic optical discs. Blu-ray Discs and DVDs can only store information on the surface of the disc, but GE’s technology uses a disc’s entire substrate to hold three-dimensional holograms that store data. The discs offer the same write speed as BDs but have 20 times the storage space, according to GE. The company says in the next few months it plans to license the technology to manufacturing partners, which would be responsible for building the drive technology to write to and read the discs.

Change At The Top At Palo Alto Networks

Palo Alto Networks has announced that Mark McLaughlin, former president and CEO of Verisign, will become its new president and CEO in August. Palo Alto is a network security firm in the middle of a strong growth period and has featured a bookings run rate in excess of \$200 million, more than a year of positive cash flow, and a doubling of employees in the past year. McLaughlin already has some experience at the top, having served as CEO at his former employer since August 2009. Palo Alto’s previous CEO, Lane Bess, departed in December.

Windstream Buys Paetec

Windstream announced that it will acquire telecom services provider Paetec for \$891 million. Windstream also agreed to take on about \$1.4 billion of Paetec’s debt. The acquisition will add an additional 36,700 miles of fiber to Windstream’s network, as well as seven data centers, giving Windstream a nationwide fiber infrastructure and greater capabilities in data center services and cloud computing. Windstream said the deal will yield about \$100 million in annual cost savings and increase cash flow during the first year of consolidation. The deal is expected to close within six months.

Google+ Experiences Strong Growth; A Likely Competitor In Social Networking

After just one month, Google+, Google’s first social networking site, has obtained 20 million users. Although the site is invitation-only at the moment and still in beta, 10 million users joined the network in the first week alone. The Google+ network has asked that enterprises and organizations wait for the business version, which is currently in trial stages with a few select participants. Analysts estimate Google+ will be a major competitor for Facebook, LinkedIn, and Twitter, as it is entering the market with a combined approach to social networking and has the support of millions of consumers already using Google products.

Safari Gains Ground In List Of Top Browsers

Net Applications released its Net-MarketShare data report, which indicates the browsers dominating the market. Internet Explorer is still on top with a 52.8% market share, a figure that has slipped from about 67% two years ago. Firefox remains in the No. 2 slot, but has also lost market share over the past few years. Relative newcomer Google Chrome continues to steadily take market share, currently in third place with a 13.5% share. The biggest surprise is perhaps Apple’s safari with just over an 8% share—the largest usage increase ever for the browser. Net Applications revealed that iOS devices helped to boost Safari usage; these mobile devices account for one-third of the browser’s total share.

Twitter Obtains Major Funding Deal

Twitter recently announced in its blog that it has received “a significant round of funding led by the venture firm DST Global, with the participation of several of our existing investors.” Although the exact investment amount was not officially released, Web reports speculate an estimated \$800 million deal. The social media site has seen rapid growth in the past few years, now employing more than 600 people and boasting more than 1 million registered Twitter apps. The investment will likely buy out current shareholders and help the company to expand globally.

IDC Drops Estimated Processor Shipments

After originally forecasting a 10.3% growth in processor shipments this year, IDC lowered that estimate to 9.3%. The 1% drop in estimated processor shipments is due to floundering laptop sales in major markets, including the United States and Europe. The company monitors microprocessor shipments from AMD, Intel, and Via Technologies. It was noted that although Intel holds the majority of processor market share, AMD took share from the company in the last quarter. IDC analysts previously speculated that popular new devices such as tablets and smartphones are hindering PC sales, along with the lackluster demand for netbooks this year compared to last year.

U.S. Navy To Consolidate IT

The U.S. Navy plans to implement a consolidation plan to reduce its non-tactical IT budget by 25%. The new NGEN, or Next Generation Enterprise Network, is expected to replace the NMCI (Navy Marines Corps Intranet). This new plan will allow the Navy to consolidate more than 80 data centers and move software to the cloud. The U.S. Army is also initiating cloud solutions; it is estimated this transition will save the military \$100 million each year. These plans follow the White House announcement of a government-wide effort to close 800 data centers by 2015.

Video Consumes Mobile Bandwidth

Video streaming, especially from YouTube, is taking up a significant portion of mobile bandwidth. According to a report from Allot Communications, 39% of global mobile traffic is allotted to video streaming. YouTube alone takes 22% of the bandwidth, which is up from its 17% share last year. YouTube now provides more than half, 52%, of all streamed videos. Other bandwidth-heavy tasks included file sharing (29% share) and Web browsing (25% share). IM and VoIP use also increased, with Skype heavily dominating the mobile VoIP market. In total, mobile data use increased 77% from last year.





Tech Groups Protest Internet Tax Bill

Sen. Dick Durbin (D-Ill.) and five other Democrats introduced the Main Street Fairness Act, legislation that would require Web-based retailers to collect sales tax from their customers. The bill's proponents say that it is unfair that physical stores are required to collect sales tax when most Internet retailers are not. In 1992, the Supreme Court ruled that states are not allowed to collect sales tax from businesses with no physical presence in the state where the customer lives. Amazon and other

large retailers have voiced support for the new bill, but some tech groups are opposed, saying it will create expensive obligations for small businesses looking to expand by selling online.

IBM Patents Acquired By Google

Google's patent holdings have increased by 1,000 as a result of a recent purchase from IBM. Google says the goal of the purchase is to protect the company from lawsuits and acquire "patents that are relevant to our business needs." The acquired patents

cover a wide variety of areas, including fabrication and architecture of memory and microprocessing chips, servers and routers, relational databases, and object-oriented programming. This recent move follows an unsuccessful attempt by Google in April to purchase 6,000 patents from Nortel, ostensibly to buoy innovation at Google, particularly involving the Android mobile platform and Chrome OS and browser.

Suspect Charged In 'Topyary' DDoS Attacks

British police have arrested the person they believe to have conducted DDoS attacks against the Web site of the Serious Organised Crime Agency, Britain's counterpart to the FBI. Jake Davis, 18, is alleged to be "Topyary," spokesman for the hacking groups Anonymous and Lulz Security, and was known to run a well-trafficked Twitter account that followed the DDoS attacks and data theft pranks of the two groups. He is charged with unauthorized access to a computer system, encouraging offenses, and two counts of conspiracy. Also questioned in the case was a 17-year-old whose name was not released.

Sales, Profits Up At Cognizant

Outsourcing company Cognizant released results for the quarter ended June 30. The Teaneck, N.J.,-based company showed growth in revenue and profits. Quarterly revenue was \$1.5 billion, an improvement of 34.4% over the same quarter last year. Net profit was 20.8% higher, as well, at \$209 million. The company also added 7,100 employees to its payroll. The company is now forecasting 2011 revenue of more than \$6 billion, an improvement of 32% over last year.

EMC Acquires Asankya

Asankya, an application acceleration services and solutions developer, has been acquired by EMC. EMC didn't release details on the deal, but the company did say that it had "acquired some of the assets of Asankya and has hired some of its employees." Best guesses are that the deal lies in the \$5 million to \$10 million range. It is thought that EMC's push to acquire Asankya was encouraged by a desire to apply Asankya's parallel networking technology for cloud content delivery acceleration. Perhaps as a consequence, Asankya's Web site was taken down shortly after the acquisition.

Alcatel-Lucent Wins Patent Judgment With Microsoft

Microsoft has lost its battle with Alcatel-Lucent involving a patent infringement case that has stretched out over the past eight years. In the suit, decided by a San Diego court, the software giant must pay Alcatel-Lucent \$70 million for patent violations involving Outlook, among other products. The same court that heard the arguments in 2003 decided, in 2007, that Microsoft owed Lucent \$1.5 billion. Eventually, a new trial was ordered, and the settlement was reduced to \$70 million. There's no word yet on an appeal by the Redmond firm.



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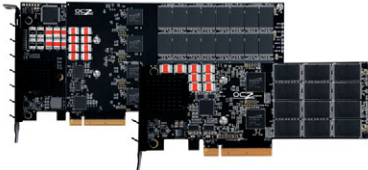
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(855) GREP-4-IX | www.ixsystems.com

PREMIER SOLUTIONS Co. TRIAD HIGH DENSITY AIRFLOW PANEL

The Triad raised access floor systems from Premier Solutions Co. are the ideal solution for data center, server farm and hot spot cooling. Replacing ineffective airflow systems in a very cost effective way, Triad’s passive River Cooling systems provide 8% to 40% reductions in Data Center energy bills. This heavy duty steel airflow panel features up to a 3000 lbs. load rating, a hardened textured finish, built in actuating frame levelers and integrated panel handles. Triad’s Fit-All design will fit into most existing raised access floor systems providing the most flexible and low maintenance raised access floor system in the industry.



- 65% airflow
- 1500 - 3000 lbs. load rating
- Dual handles
- Horizontal & vertical levelers

(714) 557-5800 | www.premiersolutionsco.com

QUEST SOFTWARE vRANGER BACKUP & RECOVERY SOFTWARE

Get Blazing-Fast Backup and Recovery with vRanger

The vRanger product family delivers simple, affordable VMware backup and replication at lightning-fast speed. Plus, it significantly reduces storage requirements to save you money. So which edition is right for you? vRanger Standard Edition provides easy, rapid, and cost-effective backup and restore capabilities. vRanger Pro gives you all that, plus VMware replication for comprehensive VMware data protection in one intuitive interface. And one-pass ESX / ESXi backup, simplifies your disaster recovery plans for vSphere. With vRanger, you can improve disaster recovery plans on site or remotely. See for yourself. Download a free trial!



(800) 306-9329 | www.quest.com/ServerVirtualization

SET3 DATA CENTER CLEANING AND PRODUCTS

SET3 (Sterile Environment Technologies) specializes in cleaning and products for critical environments such as data centers, laboratories and cleanrooms. Our cleaning technicians are specifically trained to work in live data center environments according to industry and ISO standards. Our cleaning / decontamination services are available nationwide for nearly every surface in the data center, including subfloors, cabinets, access floors and interiors of servers. All of our services include a complimentary Environmental Report complete with industry information, benchmarks, findings, recommendations and conclusions. Services are also available in Europe, UK and Asia Pacific.



(888) 935-0620 | www.SET3.com

CS ELECTRONICS HD MINI-SAS CABLES

CS Electronics, your connectivity solutions provider for High-Speed Data Cables, is now offering the newest addition to the SAS architecture. The High Density (HD) system, referenced as Mini-SAS HD (SFF-8644) in the SAS 2.1 standard, meets 6Gb/s SAS and Next Generation 12Gb/s speed and density requirements as planned for SAS 3.0. The Low-profile interface uses less PCB real estate allowing twice the port density compared to the previous version of Mini-SAS. We offer these new HD Mini-SAS cables (SFF-8644) configured with virtually any other SAS or SATA connector. Many configurations and lengths are **IN STOCK!** For these and anything else you need for your High Speed Data Networking needs, contact us via the information below.



(800) 470-0744 | www.cselex.com

ELECTRIC CLOUD ELECTRIC COMMANDER

ElectricCommander automates and accelerates the application development process and its supporting IT resources. ElectricCommander makes the application development process run faster and with fewer errors, ensuring cloud infrastructures are utilized more efficiently. When software development is mission critical in an enterprise, ElectricCommander creates a competitive advantage through higher software quality, reduced costs, and increased developer productivity.

- Visibility and reporting for better project predictability and fewer process errors
- Shared platform for disseminating best practices



sales@electric-cloud.com | www.electric-cloud.com

EXTRAHOP NETWORKS APPLICATION PERFORMANCE MANAGEMENT EH1000v

Manage application performance within cloud environments and across distributed branch offices with the EH1000v from ExtraHop Networks. This solution performs deep L2–L7 analysis of transactions as they pass over the wire, extracting critical metrics in real time. The EH1000v packs the power of the ExtraHop system in a virtual appliance that is easy to deploy and manage.


- Monitor and map application performance in virtual environments and distributed branch offices
- Triage and troubleshoot issues faster with visibility across all tiers of the application infrastructure
- Mitigate risk for physical-to-virtual application migrations by analyzing performance in the virtual environment



(877) 333-9972 | www.extrahop.com

ISARUSA PERFORMANCE STORAGE SERVER CHASSIS WITH ENERGY EFFICIENT PSUs

The E Storm Storage Server Chassis Series from iStarUSA – Powered by iStarUSA Group is the best choice for high-efficiency power supply units from Xcel. Featured is the 2U E2M8 Chassis that has built in eight bay hot swap drive trays with miniSAS backplane. It is an IT professional's ideal choice for building servers for the SMBs that deal with large amount of content transfers each day. The high efficiency redundant power supplies comes in 600, 700, and 800 watt-ages, and help reduce long term utility and equipment costs. Bundled together, the E2M8 and the 2U Redundant PSUs will exceed all expectations.



(888) 989-1189 | www.istarusa.com

XROADS NETWORKS 'aXcel' BANDWIDTH MANAGEMENT PRODUCTS

XRoads Networks announced the release of its aXcel product line which is specifically tailored to optimize network performance for data center applications. The aXcel products include: VPNaXcel, WEBaXcel, SERVERaXcel, NETaXcel, and LINKaXcel. Each is designed to solve a specific bandwidth management problem, including link and server balancing, traffic shaping, real-time network reporting, and WAN optimization. The appliances are simple to use, install transparently in to any network, and are scalable, from 10Mbps up to 350Mbps of sustained throughput. They also support up to five redundant ISP connections. Pricing starts at just \$1995. For details, please visit the site below.



(888) 997-6237 | processor.xroadsnetworks.com

UPSITE TECHNOLOGIES® KOLDLOK® ROUND 4" GROMMET


Upsite Technologies announces the release of its KoldLok Round 4" Grommet, the latest innovative design from the LOK Family of Solutions™. The KoldLok Round 4" is engineered with a split design feature, allowing for product installation or removal without disturbing cables. New Hybrid Brush Technology (HBT) offers a flexible, highly efficient sealing membrane and multi-layered construction for increased sealing effectiveness, resulting in the most efficient grommet on the market and the premium choice for your facility. The KoldLok Round 4" is maintenance free with simple installation, RoHS compliant and engineered to make a difference.



(888) 982-7800 | www.upsite.com

CUBE GLOBAL STORAGE LIVEBACKUP


CUBE's LiveBackup Service for Business Computers resides in CUBE's ultra-secure post disaster facility. Utilizing LiveBackup and an existing Internet connection, the mission critical data stored on your servers, storage devices and other computers can be backed up over the Internet on a backup schedule and strategy designed by you. LiveBackup detects and backs up only the files that have changed since the last backup session. This allows for shorter backup windows, increased efficiency and decreased bandwidth consumption. Visit www.cubeglobalstorage.com to see our full line of services to protect your data.



(800) 661-0272 | www.cubeglobalstorage.com

FREEAIRE COOLER CONTROLLER

Freeaire® Refrigeration systems are air-side economizers that utilize free cooling to significantly reduce energy use in data centers in virtually any climate, year-round. The Cooler Controller™ operates one or more Freeaire® Polar Packages™ to exchange cooler, filtered (MERV 8) outside air directly for the heated air coming from the servers. The computer room air conditioning (CRAC) unit operates only when the outside air is not cool enough to handle the entire cooling load by itself, thus keeping the Power Usage Effectiveness (PUE) metric as low as possible. Freeaire® systems are unmatched for efficiency and reliability.




(877) 305-3733 | www.freeaire.com

PACKET POWER SMART POWER CABLES

Make "Dumb" PDUs "Smart"!

Wish your installed basic PDUs could track power usage in real time like the latest metered PDUs? With Packet Power's Smart Power Cables, they can. For as little as \$250 per PDU, you can quickly add true real-time RMS power and temperature monitoring to existing PDUs. Installation is easy--no need to remove existing equipment or run more Ethernet cables. Use Packet Power's software or your existing monitoring system. Avoid the cost and hassle of replacing your current PDUs. There's no easier or more affordable way to Know Your Power.




(877) 560-8770 | www.packetpower.com/getsmart

CYBER SWITCHING DUALCOM SERIES INTELLIGENT PDU

Starting at \$599

Cyber Switching, Inc. has been developing industry leading rack-mount PDUs in a variety of configurations since 1994. The DUALCOM product line offers a fully featured solution for remote power monitoring and individual outlet control.


- Individual outlet metering and full outlet control
- Total current displayed on integrated LED display
- Real-time outlet status LED indicators
- Ethernet and serial port device management
- Built-in web server simplifies management
- Features patented Cyber Breaker® technology
- Available environmental monitoring capability
- Engineered and built in the USA



(888) 311-6277 | sales@cyberswitching.com

EVENTTRACKER ENTERPRISE v7.2 SECURITY INFORMATION & EVENT MONITORING

EventTracker from Prism Microsystems provides comprehensive security information and event monitoring (SIEM) by combining log consolidation and log management, real-time threat monitoring and behavioral correlation, incident management with forensic analysis, regulatory compliance reporting, monitoring of file integrity and USB devices, and performing system change audits with automatic remediation. EventTracker Enterprise v7.2 adds StatusTracker, greatly enhancing EventTracker's ability to monitor networks, system infrastructure and core IP services. Additional features include the Data Mart feature which enhances the user's ability to efficiently conduct in-depth forensic analysis of archived log data, and a new Compliance Dashboard for at-a glance status.




(877) 333-1433 | www.eventtracker.com

DATA SITE SOLUTIONS QUANTUM AIR™ TILE

Made in the United States, Quantum Air™ Tile is an innovative way of delivering your subfloor airflow to the targeted areas of server cabinets. This passive solution's patent-pending design cools multiple cabinets with one tile, offering an energy-efficient way to deliver more CFM to the whole cabinet. In testing, the Quantum Air™ Tile dropped face inlet temperatures by 10 degrees Fahrenheit at the top of the cabinet.

- 24- x 24-inch tile dimensions
- Extruded aluminum construction
- Anodized aluminum-clear finish
- Rolling weight load limit of 1,600 pounds
- Compatible with most raised floor systems

Best For: Enterprises that want to direct the cold air supply into the server cabinet.




(866) 675-8158 | www.datasitesolutions.com

RECTIPHY CORPORATION ACTIVEIMAGE PROTECTOR: BACKUP MANAGEMENT

Fast, Flexible, Backup Management

ActiveImage Protector from Rectiphy is an affordable, high-speed, sector-based backup solution that is optimized for physical Windows and Linux machines and virtual environments including Microsoft Hyper-V. Designed to help you meet live data protection, business continuity and disaster recovery challenges, ActiveImage Protector includes blazing backup and recovery speeds, incredible flexibility and innovative backup management features, which ensure the recovery of critical information quickly and affordably. Now you can download the AIP Personal Edition for your home PC absolutely free by visiting www.AIPFree.com or try any of Rectiphy's corporate products free for 15 days by visiting Rectiphy.com




(951) 200-5660 | www.Rectiphy.com

HERGO 90/90 DOUBLE-SIDED WORKSTATION

Hergo's LAN furniture design features 1" vertical slotting, allowing the user to mount on the front and back of the unit, saving valuable space and expense. This 2-sided 72"H x 90"W workstation has 30" deep work surfaces with articulating keyboard/mouse trays on each side. The flat panel frame mounted track assembly elevates the monitors to maximize desk top space and a 7" extension arm allows the user to pull the monitor close when needed and push back to the track when not in use. Overhead mounting shelves above each monitor provide a convenient and efficient storage space.


Starting at: \$4,999



(888) 222-7270 | www.hergo.com

SIMPLYRFID IT ASSET MANAGEMENT WITH NOX™-4 RFID TAGS THAT WORK ON METAL

Tagging your assets with RFID gets your data center started on the path to quick and easy virtual inventory in seconds. For less than \$1 a tag, you can have your asset tracking system updated with the most current, relevant, and immediate location information about your equipment. Fast, accurate, on-demand inventory with NOX Vault Handheld RFID from SimplyRFID. Know what is where, and when it happened. Learn how data centers everywhere are battling information corrosion with the instant inventory capability of handheld RFID.



(703) 343-1689 | www.SimplyRFID.com

STACO ENERGY PRODUCTS
FIRSTLINE BMS WIRELESS BATTERY MONITORING SYSTEM

Staco Energy FirstLine BMS is a unique wireless battery monitoring system consisting of a Data Collector, where information is displayed through graphs and bar charts on the 6.4" LCD touch screen monitor, a Battery Measurement Kit for each battery cell to measure terminal voltage, impedance, and temperature, a String Measurement Kit to measure system voltage and current, and battery string voltage, impedance and temperature. Real-time status is compared to battery configuration settings and network paramater settings, with deviations recorded in an events log and used to trigger e-mail and or dry contact alarms. The system continuously monitors UPS batteries and provides real-time condition status.



(866) 261-1191 | www.stacoenergy.com

SMARTAVI
SIGNWARE DIGITAL SIGNAGE SOLUTION

Proudly made in the U.S.A., SignWare is an affordable and comprehensive digital signage package. It is manageable from any location on the planet, and expandable from one to one thousand installations. It offers crisp high-definition 720p/1080i HDTV video combined with stereo audio in a convenient ultra-compact enclosure. SignWare supports several different media types including live RSS feeds, AVI, WMV, GIF, Animated GIF and JPG. The unit comes bundled with a simple yet powerful software package with no recurring fees. SignWare also features environmentally friendly RS-232 controls for powering off displays when they are not in use. The SignWare complete digital signage solution retails for only \$459.



(800) 487-2243 | www.smartavi.com

BLANCCO
DATA CENTER EDITION

Blancco Data Center Edition was specially developed for mass storage data erasures. It offers multiple delivery options for 100% secure data destruction on high-end servers. Capable of simultaneously erasure of 200+ hard drives, it provides fast data erasure for ATA, SATA, SCSI, Fiber Channel and SAS hard drives. It can function with or without the LAN. It offers support for 512, 520, 524 and 528 sector sized hard drives, as well as extensive SCSI and Fiber Channel host bus adapter support for connecting external hard drive enclosures for direct erasure. It provides remapped sector erasure for ATA/SATA/SCSI/Fiber Channel hard drives, as well as detailed hardware asset reports with hard drive health status indicators.



(770) 971-9770 | www.blancco.com

FUTURE FACILITIES
6SIGMAROOMLITE

6SigmaRoomLite is the new entry level module within the industry leading 6SigmaDC suite, providing a simple approach to the build of a 'Virtual Facility' CFD Model - the key to data center optimization and management. The tool offers a clear, simple and accurate view of any new or existing data center's environmental conditions, with advanced features like CAD Importing and Internal Cabinet Modeling. For a full product listing, visit futurefacilities.com.

For a free one month trial offer, visit:
http://www.futurefacilities.com/contactus/info/roomlite_request.htm



(408) 436-7701 | www.futurefacilities.com

TOOLS4EVER
ENTERPRISE SINGLE SIGN ON MANAGER (E-SSOM)

Tools4ever, the market leader in Identity and Access Management solutions offers Enterprise Single Sign On Manager (E-SSOM) with two-factor authentication. Using a pass card or biometrics a user's identity is validated with the device and entering of a pin code at initial sign on. All subsequent sign-on to systems and applications is circumvented. E-SSOM also offers Fast User Switching, allowing users log in and out of shared workstations quickly and securely. While the Follow-Me feature enables a user's work session to move from workstation to workstation with ease and security. These features can all be implemented quickly and cost-efficiently.



(888) 770-4242 | www.tools4ever.com/uswa/products

RACKSOLUTIONS®
OPEN FRAME WALL MOUNT RACK

The Open Frame Wall Mount Rack from RackSolutions adjusts to nine different configurations, making it ideal for almost any application. The rack is perfect for networking equipment with a front mount of up to 21U of space and a top and bottom rack space of up to 9U. The Wall Mount Rack comes in 12U, 15U and 21U heights as well as depths of 9", 12" and 17". The open design promotes optimal air flow while offering a weight capacity of up to 400 lbs. Side panels, top panels and front covers are optional. With an assembly time of less than ten minutes, the Open Frame Wall Mount Rack is best suited for network switches, patch panels and servers (mounted vertically). Starting at \$199.99.



(888) 903-7225 | www.racksolutions.com

PDI POWERWAVE BUS SYSTEM™
FLEXIBLE OVERHEAD POWER DISTRIBUTION BUSWAY

The PowerWave Bus System™ is specifically designed for the critical power market by PDI, a leading manufacturer of mission critical power equipment. Available in all sizes ranging from 160-800 amps, the PowerWave Bus System™ is a rugged, and highly configurable continuous run design that incorporates PDI's patented branch circuit monitoring solution. Custom tap off distribution boxes with up to 6 breaker poles enable you to choose your circuit breaker style and manufacturer, receptacle style and location as well as custom cable whips. The busway can be mounted vertically or horizontally and is used in PDI's i-Con Modular Data Center™. On Display at AFCOM 2011-Orlando-Booth #414



(800) 225-4838 | www.PDICorp.com

MARUSON
ARMADA SERIES UPS

Armada Series UPS (1-20K) delivers true double-conversion on-line power protection suitable for servers, advanced networking applications and medical devices. Equipped with a Microprocessor Control, the complicated hardware circuitry is inlaid in the powerful microprocessor with software and control programs. In addition, the Power Management Software gives full access to battery control and monitoring. Specifically for 6 to 20 KVA, N+1 Parallel Redundancy architecture technology can achieve savings of purchasing an extra UPS with corresponding backup rating. Lastly, the bypass mode on all units enables hot-swappable replacement of UPS parts without disruption to connected equipment.



(888) 627-8766 | info@marusonusa.com

DYNATRON
INTEL SANDY BRIDGE SOCKET 2011 CPU COOLER

Dynatron, an Intel third-party thermal verified vendor, announced the release of its Intel Sandy Bridge Socket 2011 CPU Cooler series. Model R16 is the most extreme high performance low profile 1U server heatsink. Features include innovational Vapor Chamber technology with copper heatsink and 80mm Aluminum PWM function blower up to TDP 130W cooling power. Its efficient way to manage heat transfer faster and increase 20% thermal performance. The effective cooling and the lighter weight ensure long life and reliability. For more products information, please visit Dynatron website or email sales at sale@dynatron-corp.com



(510) 498-8888 | www.dynatron-corp.com

MAGMA
SMART EXPANSION™ - EXPRESSBox 4 1U

Add Four Full-Size PCI Express® Slots in 1U Chassis
Benefits:

- Extend PCI Express outside the computer
- Peer to peer transfers
- Daisy-chain multiple chassis
- Reliability, Availability, and Serviceability

Features:

- Hot-swappable slots
- Accepts all PCIe cards (x1, x4, x8, x16)
- Sliding backplane card carriage
- 1U rack-mount chassis with built-in slide rails
- Includes x8 PCIe host card and cable



(800) 285-8990 | www.magma.com/expressbox41u.asp

POLARGY INC
POLARDAM™ AIR DAM FOAM

Polargy's PolarDam™ Air Dam Foam is an inexpensive, fire-retardant, tear as you go product used to seal any size hole in your data center. PolarDAM™ Air Dam Foam features:

- UL -94-HF-1 rated ether-based polyurethane material
- Less expensive than brush grommets and requires no tools to install or remove
- It comes in six 24" x 24" x 2" sheets and is scored into a 1"x1" perforated grid
- It's customizable to any size or shape needed

Finally, the solution you've been looking to efficiently seal up your data center.



(800) 816-8338 | www.PolarDAM.com

NETWORK TECHNOLOGIES INC.
ENVIROMUX® ENVIRONMENT MONITORING SYSTEM

Network Technologies Inc (NTI) announced the addition of the USB port feature on the ENVIROMUX® Enterprise Server Environment Monitoring System. The new USB port feature on the ENVIRONMUX-SEMS-16U allows a user to send alerts via a USB 3G modem, download log data to a USB drive, or send event-triggered IP camera snapshots by email. A variety of sensor alerts can be programmed to trigger a snapshot, such as motion detection, glass break, door open/close, smoke, liquid detection, and more. Up to eight IP Cameras can be viewed simultaneously via the Web Cam monitoring section of the ENVIROMUX-SEMS-16 web interface.



(800) 742-8324 | www.networktechinc.com

Gnodal
GS-Series Switch Family

Gnodal announced the release and general availability of its GS-Series Switch Family, providing the highest density, lowest latency Top-of-Rack 10 and 40-GbE solutions available on the market. Built for scalability, the GS-Series maintains its ultra-low latency and high throughput as the system size grows, making it an ideal infrastructure for low latency applications, virtualization, high performance storage and server consolidation within the data center.

- 150 ns latency for first switch and 66 ns latency for each additional switch
- Scalable 10/40 GbE support
- Congestion-free architecture
- Dynamic load-balancing across multiple units



(650) 268-9920 | sales@gnodal.com

IO TURBINE ACCELIO™ SOFTWARE I/O PERFORMANCE
FOR VIRTUALIZED ENVIRONMENTS

IO Turbine's Accelio software increases virtualized application performance, enables higher VM density per host, and offloads I/O from primary storage subsystems to reduce spindle count allowing spindles to be utilized for capacity rather than being overprovisioned for performance. Accelio runs as a component in the hypervisor and in the guest OS and utilizes Flash storage installed in the host. By coupling with the file system I/O routines in the guest OS, I/O patterns are transparently redirected so Flash storage is shared across all hosted VMs. For optimal use of resources, Accelio dynamically rebalances Flash capacity as VMs come and go, supports vMotion and the movement of VMs from host to host. See us at VMworld Las Vegas Booth #1429.



(408) 418-0036 | www.ioturbine.com | sales@ioturbine.com

COMPUTER MOVERS, INC
MOVING SERVICE

Computer Movers has the equipment, expertise, and desire to exceed your expectations at every opportunity. With over thirty years of experience developing cutting edge techniques to protect and transport high end electronics, our ultimate goal is to complete your project with a minimal disruption to your business.

Services Provided:

- Padded Van Moving / White Glove Service
- Data Center Relocation
- Storage
- EPA Recycling



(800) 878-2668 | www.computermovers.net

CHENBRO SR301 MINI-SERVER CHASSIS

Chenbro SR301 is the new generation Sandy Bridge ready mini-server chassis. It is targeted to serve as a clientele server solution for SMB and SOHO. With its 13L compact size, SR301 support Intel new generation Sandy bridge E3-1200 series and compliant with Microsoft Y2011 Small business server specification. With 4 removable 3.5" HDD with 6G SAS/SATA II B/P and 2 internal HDD option, SR301 offers maximum flexibility and expandability. SR301 is scheduled to release in later Q3, for more information, please contact Chenbro for more information.



(909) 947-3200 | www.chenbro.com

RF CODE
R160 AIR PRESSURE SENSOR

RF Code's R160 Air Pressure Sensor is the newest addition to its wire-free environmental and power monitoring solutions. The sensor reports differential air pressure readings, enabling monitoring of changes in air pressure and eliminating manual troubleshooting of suspected air flow-related problems. Sensor data flows into RF Code's Sensor Manager software, which manages the information and provides trending, reporting and alerting. Other leading software platforms can also consume the air flow data because Sensor Manager has off-the-shelf integration modules and open APIs, making custom integration easy.

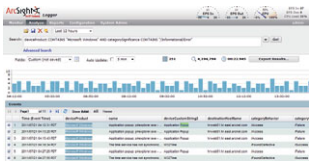


See page 3.

(877) 463-0756 | www.rfcode.com

ARC SIGHT™ LOGGER
ARC SIGHT, AN HP COMPANY

ArcSight Logger is the first Universal Log Management solution that unifies searching, reporting, alerting and analysis across any type of enterprise log data, making it unique in its ability to collect, analyze and store massive amounts of data generated by modern networks. It supports multiple deployment options and can be deployed as an appliance and as software. Processor readers can now get this world-class log management software for free! Visit <https://store.nexstra.com/arcsight/sso?PARTNER=FreeLogProcessor> today and begin experiencing this high performance log data repository and faster forensic analysis.



(888) 415-ARST | www.arcsight.com

SPEC-CLEAN
TACKY MAT FRAME KIT

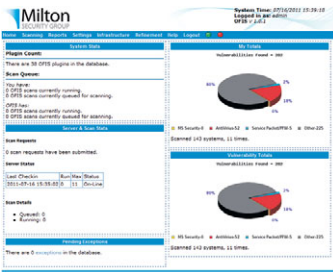
The Tacky Mat Frame Kit is perfect for applications where frequent lifting of the mat for cleaning is required and/or for use in areas where the mat is unable to adhere to the floor. Slim profile, overall height is 3/16".

- Mats are made from incinerable polyethylene film, removes foot borne particulate before entering the cleanroom
- Seamless one-piece construction
- Numbered tabs provide easy identification and sheet separation
- Easy mobility for carts and wheeled machinery
- Polyethylene film contains a special anti-microbial agent providing long-lasting protection against bacterial growth
- Frames are made of white high impact polystyrene with a non-skid rubber backing.



(203) 885-0174 | www.specclean.com

MILTON SECURITY GROUP EDGE OF IS
ENDPOINT VULNERABILITY SCANNER



Milton Security Group LLC's EdgeOFIS endpoint vulnerability scanner lets you identify and prioritize known and zero-day vulnerabilities to protect your organization's valuable assets.

- Leverages the large and ever growing library of scan sets used by Milton Security Group's Edge7200 series.
- Fast discovery and scanning of all assets on the network.
- Non-intrusive scanning engine to optimize network performance and scan network devices, operating systems, applications, and databases.
- Prioritization of vulnerabilities to expedite mitigation.
- Customizable Systems and Schedules.

(888) 674-9001 | www.miltonsecurity.com

VM TURBO CLOUD OPERATIONS MANAGER

Designed specifically to orchestrate across multiple layers of services and infrastructure, the VMTurbo Cloud Operations Manager helps organizations achieve the agility promised by virtualization and cloud computing in large, complex, and dynamic environments. An intelligent workload management solution for cloud and virtualized environments, VMTurbo Cloud Operations Manager uses an economic scheduling engine to dynamically adjust resource allocation to meet business goals. As a result, VMTurbo ensures that applications get the resources they need to operate reliably, while utilizing infrastructure and human resources in the most efficient way. Download a free 30-day trial: <http://www.vmturbo.com/vmturbo-management-suite-download/>.



(781) 373-3540 | www.vmturbo.com

ATHENA POWER ATLAS MINI REDUNDANT SERIES
500W-800W MINI REDUNDANT POWER SUPPLY

Do you foresee the need of saving energy and increasing the overall wattage for your system? The new Mini Redundant ATLAS™ power supply series can provide power up to 500 to 800 watts and still maintain a rating of 80% efficiency. With its Hot-Swap and Power Sharing features, the ATLAS™ series can significantly increase the reliability of a computer system and minimize the total downtime. The ATLAS™ power supply series is an uninterruptible power supply with 80PLUS certification and is the ideal power source for telecommunications systems, industrial systems, and for a variety of other mission-critical servers.



(626) 810-5008 | www.athenapower.com

CORMANT CABLE SOLVE

More than a Data Center Infrastructure Management System, Cormant's CableSolve solution enables total infrastructure visibility of the physical and logical environments. It is the most trusted, configurable, flexible and portable infrastructure management solution available. CableSolve provides complete documentation of the physical layer, including all assets and connectivity, as well as logical layer data from networked devices via SNMP, WMI, API, etc. Additionally, IT managers are able to move, change, track and audit the entire IT infrastructure in real-time using the portable CableSolve handheld or smartphone, all from a solution that provides a single pain of glass view into the entire IT infrastructure for planning and management.



(855) 267-6268 | www.cormant.com

MBP POWER
CUSTOM-ENGINEERED PDUS

MBP Power, founded by Michael B Pulizzi, provides custom-engineered solutions for your AC and DC Power Distribution Unit (PDU's) requirements. MBP Power will engineer a PDU to match your form, fit, and function specifications as well as worldwide safety agency and other performance needs such as shock and vibration. Whether for use in aerospace, military, government, medical, datacenter, financial, OEM, test and measurement, communications, and broadcast environments, domestically or internationally, MBP Power is your primary power source solution. Contact Mike Pulizzi at mikepulizzi@mbpulizzi.com.



(605) 231-0620 | www.mbppower.com

FIELDVIEW SOLUTIONS FIELDVIEW 4.0 DATA CENTER INFRASTRUCTURE MANAGEMENT SOFTWARE

FieldView Solutions, a provider of industry-leading data center infrastructure management (DCIM) software, introduces FieldView 4.0--an enhanced version of the company's award-winning platform. The new version of the software boasts advanced system measurement tools and streamlined analytical reports that improve and control data center energy usage while validating cost savings across globally distributed environments. Enhancements Include: Site Metrics Ribbon, Redesigned User Interface, the Metrics Viewer, Business Intelligence Reports and Charts, Critical Polling Agent, Visibility into Infrastructure and Supporting Computer Equipment, Zone Concept, Enhanced Operational Reporting, and Enterprise Integration Layer.



EPSON PowerLite 1880 Projector

Epson's PowerLite 1880 is a new low-cost portable projector designed to provide brightness and advanced functionality to budget conscious businesses and higher education institutions. The PowerLite 1880 (\$1,399*) offers 4,000 lumens of color and white light output with XGA resolution. The PowerLite 1880 comes equipped with flexible setup features such as Easy-Slide technology, an intuitive horizontal keystone adjustment slider, as well as advanced connectivity options, including an HDMI digital connection, USB Plug 'n Play instant setup, and PC-Free slideshows. The PowerLite 1880 also offers advanced networking with wired LAN connectivity.



800-463-7766 | www.epson.com

REVINETIX REVOS

Revinetix delivers a reliable, easy-to-use and affordable data protection and disaster recovery solution in a fully integrated disk backup appliance, used by school districts, colleges, universities, municipal governments, healthcare facilities and small to medium enterprise businesses across North America and Europe since 2003. The total disk-based backup appliance includes RevOS backup software with central administration, deduplication, hot/live bare-metal restore, and support for offsite disk archiving and remote site replication.



(866) 639-5515 | www.revinetix.com

AIRESPRING MPLS MESH

AireSpring announces the release of their groundbreaking MPLS Mesh product which combines multiple carrier MPLS networks into one single secure implementation. Customers can now pick and choose MPLS carriers based upon rate and availability making MPLS affordable and available everywhere, all with a single monthly invoice.

- Features:
- Available across the United States
 - Lowest rates across multiple carrier networks
 - Fully managed network infrastructure
 - Enterprise class support
 - Voice over MPLS available for even greater savings



(800) 825-1055 | www.airespring.com

GLOBAL DATAGUARD SIGNATURE SELECTION CAPABILITY

Global DataGuard announced the availability of the enhanced Signature Selection Capability for customized detection of network vulnerabilities. Configurable through the unified management console's tools menu, the new Signature Selection feature automatically fine tunes signatures based on a customer's specific network requirements. The signature selection software automatically matches existing Common Vulnerabilities and Exposures-based (CVE) signature rule sets to vulnerabilities and then loads IDS/IPS detection rules that specifically look for network attacks and potentially vulnerable resources. The Signature Selection feature can exclude any given signature rule set, as needed, if it relates to activity that a customer's application requires in order to function.



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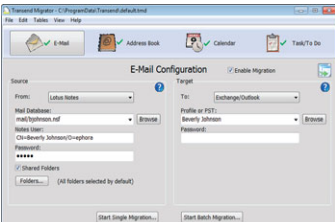
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How Virtualization & The Cloud Impact Environmental Monitoring

Continued from Page 1

“Where virtualization is added to existing hardware, the electronic devices employed will be working harder than they were before virtualization,” Ruede explains. “This means drawing more power, generating more heat, and requiring more cooling. Because this added demand on the electronics may not be matched by added cooling to compensate for the additional heat generation, environmental monitoring will be more critical to make sure things don’t get too hot.”

When virtualization is added to existing equipment that’s not designed specifically for the technology, temperatures can quickly rise, catching IT managers off guard if they’re not closely monitoring their environments. However, Ruede notes that when virtualization is deployed on new hardware specifically designed for virtualization—particularly hardware that’s far more efficient and consumes less power—environmental monitoring can simply continue at current, pre-virtualization levels.

Data centers currently using environmental monitoring tools can find that virtualization helps the process by increasing the reliability and uptime for the accompanying monitoring software, adds Michael Sigourney, senior product specialist with AVTECH (www.avtech.com). In this instance, data centers don’t need to depend on a single, standalone host PC and can obtain 24/7 monitoring without interruption.

Cloud Concerns

Common sense would appear to indicate that cloud services can only help the task of environmental monitoring because these

services remove processing burdens from data centers. Although that’s generally the case, there are still several points to keep in mind. For example, Ruede says that if a company decides to contract with a server hosting company to deploy cloud servers rather than adding server capacity in house, the environmental monitoring requirement will fall on the hosting company.

“This may mitigate the cost of monitoring for the company contracting the cloud service provider, but companies may put demands on service providers they might not put on themselves for a host of reasons,” Ruede says. “The net effect may be greater environmental monitoring, since the cloud server provider may be held to a higher standard.”

Companies that offer cloud services or deploy internal clouds for their own organization will find that their environmental monitoring needs remain critical to ensuring a smooth-running environment. According to Femrite, cloud-related infrastructure typically contains virtualized equipment, so the same concerns around virtualization are also valid here in terms of monitoring. He adds that increased server rack densities, coupled with higher server processing loads, result in airflow issues and/or hot spots, which can negatively impact the performance and uptime of cloud servers.

Like virtualization, the cloud has also served to enhance environmental monitoring in certain ways. “The cloud has allowed control and access to leading environmental monitoring products from anywhere,” Sigourney says. “This has changed the entire market so that now managers

can be offsite in remote locations with full control, anytime and anywhere. All they need is access to the Web. Desired changes can be made without delay, and alerts can be received in seconds. Advanced products allow the user to implement server shutdown and other functions automatically through the cloud as a response to environmental changes.”

Effective Monitoring

State-of-the-art data center technologies such as virtualization tend to demand innovative technologies to support them, and environmental monitoring tools are no exception. Environments using virtualization don’t exhibit the exact same behaviors or conditions as environments not using virtualization, so it’s essential to have monitoring tools that can efficiently and accurately alert data center personnel to potential problems.

“Environmental sensors can control automated response systems . . . and automated responses can often prevent or resolve problems before they get worse,” Ruede says. “For example, fire suppression systems triggered by reliable, fault-tolerant sensors may be deployed to keep damage to a minimum. Likewise, electrical power sensing systems can pull UPSes into service when they’re needed and take them out of service when they’re not. But sensors cannot make all calls to action.”

Because rises in temperature can indicate a local or discrete problem, it’s possible that sensors might not have sufficient coverage to pinpoint the exact location or cause of the problem, Ruede says. In these cases, trained personnel might be necessary to help diagnose and resolve issues that automated response systems can’t accurately handle. **P**

Going Remote

Environments using virtualization or hosting cloud services are particularly sensitive to environmental changes due to the typically dense, powerful equipment required to run them. To help meet the challenge of this increased sensitivity, data centers can use remote monitoring solutions to track temperature, humidity, airflow, power consumption, sound, voltage, and other elements. Such solutions generally allow notifications or alarms to be sent to personnel when certain thresholds are met, but they also provide other benefits.

“The real-time monitoring of the data center environment is just one huge advantage,” says Brett Femrite, sales manager for Rackmount Solutions (www.rackmountsolutions.net). “Data center managers can also report on, graph, and chart the data from these solutions, which will allow for easy recognition of trends in the data center—hot spots [or] temperature spikes during peak operating hours or during non-peak hours and weekends when the AC system may be throttled back to save on the electric bill.”

Knowledge Is Power

Continued from Page 1

because it’s been known for quite a while, and because of that, there are a lot of policies and security controls in place,” he explains.

Mobile phones, on the other hand, too often don’t have the same type of security controls in place, and even if there are policies,

weren’t aware of the policies. Furthermore, most of the employees at the companies surveyed don’t understand how the security-related settings on their phones work.

One general rule of thumb, experts agree, is that IT managers and employees should think of mobile phone security policies in

“The important thing to remember is to communicate simply and straightforward. You can easily get confusing and complicated in security, and you don’t want people to get scared off by the information.”

- Lookout Mobile Security's Kevin Mahaffey

will the employee heed the policies on a personally owned device? This is why it’s vital to educate employees on the security issues involving smartphone use and how to avoid security risks. Here are some tips to help you get your employees started down the path to mobile security enlightenment.

It All Begins With Policies

Employee education should start with developing a mobile phone security policy. The policy, Luce says, should focus on whether personal devices should have access to the company network and then decide how much access they should have.

Once the policy is in place, make sure the employees know it. A study by McAfee and Carnegie Mellon University found that while 95% of companies have mobile phone policies in place, two-thirds of the employees

the same way they do computer policies. Today’s advanced mobile phones are computers, after all—albeit computers that fit into a pocket. And thinking of it that way, IT management needs to think about the corporate information phones have access to.

“Company information should have very restricted access,” says Michael Shevelev, president of Trisys (www.trisys.com). The more restricted access is to the network, he adds, the less chance of sensitive data being stolen.

Information Dissemination

To get the word out to employees, Kevin Mahaffey, CTO at Lookout Mobile Security (www.mylookout.com), suggests using tactics such as seminars that review not only security policy but also how to implement security measures. In fact, these seminars should be part of any new employee

orientation. Regular email tips can keep employees abreast of new security news or provide refresher information. Additionally, posting the security policies on an internal Web site makes them readily available for employees to review at their convenience.

How the IT department best interacts with employees should be the driving factor in approaching education, Mahaffey says. His company puts out simple documents and posts them on a blog. “The important thing to remember is to communicate simply and straightforward,” he says. “You can easily get confusing and complicated in security, and you don’t want people to get scared off by the information.”

Establish Usage Guidelines

Shevelev adds that not only should companies be educating employees on how to use security features on their phones, but also on where and when to use the phones. “IT managers need to stress that when you are conducting business over the phone,

you need to exercise extra caution,” he says. In other words, go ahead and talk to a business client on the morning train commute, but don’t reveal any sensitive information because you don’t know who is listening.

IT managers can also take an active role in making sure employees’ mobile phones are kept safe and secure. Experts suggest providing information to employees on apps that are specifically geared to protecting a phone—not just antivirus or anti-malware protection, but also location services, data backup, and the ability to lock or remote-wipe the phone if it is lost or stolen. Many of the apps are free, but IT managers could consider reimbursing employees for the cost of upgrading. Requiring phone protection could be written into the security policy as a condition of using a personal phone for work-related use.

At the very least, IT managers should make sure employees know how to password-protect their phone, as well as any wireless router the phone may be using.

“The starting point for educating employees on safe mobile phone use is to make sure they understand security is a shared responsibility,” Luce says. “The mobile phone has risks for the company and on personal levels. Everyone must work together to limit those risks.” **■**

Empower Employees With Open Communication

Education is just one side of the equation, says Kevin Mahaffey, CTO at Lookout Mobile Security (www.mylookout.com). Employees need to be empowered to stay safe.

“[Employees] need to feel like they are in an environment where they feel comfortable coming forward to say the phone has been lost immediately,” Mahaffey says. “A lot of times, if it is a hostile environment, people will wait two or three days to report a missing phone. At that point, the battery might be dead and it is too late to do a remote search or a remote wipe.”

Make sure your employees know that they can ask questions, report problems, or come to IT for help rather than trying to solve problems on their own or letting incidents go unreported out of fear of punishment.

FEATURED PRODUCT

Infrastructure Monitoring That Keeps You Informed

Sensaphone’s IMS-4000 Offers A Number Of Sensors & Alert Capabilities To Make Sure Your Enterprise Is Up & Running

THINK ABOUT WHAT YOU NEED from an infrastructure monitoring system. For starters, you need a solution that can detect, identify, and weigh any of the number of bad things that can happen to an enterprise, all before contacting you with the news. And when it comes to delivering that news, you need immediate alerts, and because you may not always be near your phone or computer, those notifications have to come to you in a variety of ways.

Sensaphone aims to satisfy these requirements with its IMS-4000 enterprise monitoring system. It’s based on a 1U host unit that can be expanded with nodes for additional wired or new wireless sensors.

telephone interface can also answer an incoming phone call and perform a menu-based voice command system,” Douglass says. “By calling in with a phone, you can check status, acknowledge alarms, and even perform network diagnostics. A ping network command can be issued through touch-tone phone commands, and the result is spoken back with a custom voice.”

Douglass continues, “The other unique, special interface is a two-way email system. In case firewalls make it difficult to connect directly to the remote IMS system, you can configure it to send and receive emails containing commands. For example, you could send it an email with a command to perform

says. “They can be in the same room to add many sensors, or located in other rooms, other buildings, or even other countries. As long as they have network visibility, the IMS network of a host and nodes can be located anywhere,” Douglass says.

“In addition to monitoring the environmental sensors, both the host and nodes can also monitor other devices on the network,” Douglass says. “Up to 64 IP devices and port services can be monitoring for response, so Web servers, mail servers, and so on can all be monitoring as potential failure alarms.”

Of course, some applications don’t readily lend themselves to easy sensor cabling. “A relatively new option to the IMS system



Let’s take a look at the ways the IMS-4000 can get a hold of you in an emergency.

Notifications

Sensaphone designed the IMS-4000 with innovative alerting technologies and related connectivity. The goal is to notify you immediately by the most effective means possible.

“Another potential critical failure is the network itself, or some component of the network that can prevent proper communication out to the Internet or other location,” says Bob Douglass, Sensaphone’s vice president of sales and marketing. “The IMS system

a full status verification, and the results will be replied back to you via email. An assortment of commands are available through the two-way email feature.”

Sensors & Other Devices

Besides the typical temperature and humidity probes, the IMS-4000’s sensor options include detectors for smoke, sound level, motion, water, intrusion, and power outages, the company says. “All of the sensor inputs use CAT 5 connection cables, so standard Ethernet cables can be used to patch to any of the sensors,” Douglass says.

is the availability of wireless sensors,” which requires an optional Wireless Receiver Node module, Douglass says. “And like the direct-connect sensors, the wireless sensors are supervised and will generate diagnostic alarms if their battery is too low or the sensor fails to respond for any reason,” he explains. “The wireless sensors are perfect for dynamic environments where racks and servers are often moved or upgraded.”

Power

Sensaphone also provides an internal UPS for IMS-4000 devices so that it can have a battery backup system onboard.

“In many cases, the power system itself is one of the critical items to be monitored for failure. Many other monitoring systems rely on the power, which can be a big mistake if it fails,” Douglass says.

“The IMS system includes internal battery backup in the host and the nodes to continue operating during a power problem,” Douglass continues. “And since the battery backup is integrated, the hosts and nodes automatically monitor for power failures.”

In short, the IMS-4000 is a watcher that also watches itself. For a look at the system’s full range of accessories and options, visit Sensaphone’s Web site. [P](#)

SENSAPHONE IMS-4000

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An infrastructure monitoring system with integrated voice and modem, UPS, flash storage, and a Web server, plus a long list of accessories and options.

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includes both an Ethernet connection for alarm delivery, but also a good, old-fashioned telephone line. In case of a network failure, the IMS system can go out-of-band and use the phone line to perform alarm notification using custom voice phone calls.”

By “custom,” Douglass means that you can record your own alert notifications that can be played back to you over the phone. “Voice phone calls are also a benefit when someone needs to be woken up out of bed for a critical alarm,” Douglass says. “Email alarm delivery can’t do that.”

Once notified, your next step is to remote in. Sensaphone gives you options for this, too. “In addition to the Windows software interface and the built-in Web page interface, the IMS system also includes two very unique special access methods. The standard

“When a sensor is plugged in, it is automatically identified by the IMS system, and a predetermined programming template is applied. Once a template is defined for each sensor type, then when an additional sensor of that type is plugged in at some point in the future, all programming parameters are instantly set up automatically with no action by the user at all. Even third-party sensors are compatible with the IMS system,” Douglass explains.

“All sensors are also supervised,” Douglass adds. “If a wire is cut, shorted, or unplugged, a diagnostic alarm is automatically generated.”

The host unit of the IMS-4000 supports eight CAT 5 sensors; that number is scalable up to 256 through optional expansion nodes. Nodes can be added anywhere in the world with network access, Sensaphone

Industry-Leading Organizations Form Cloud Standards Customer Council

A group of organizations, including IBM, CA Technologies, Citigroup, and Lockheed Martin, have banded together to form CSCC (Cloud Standards Customer Council), which, according to its Web site, is “an end-user advocacy group dedicated to accelerating cloud’s successful adoption and drilling down into the standards, security, and interoperability issues surrounding transition to the cloud.” Formed in April, the council is managed by Object Management Group, an international, open-membership, not-for-profit



computer industry consortium that aims to facilitate agreement between IT end users and vendors on best practices, standards, and business technology integration worldwide.

According to CSCC, the group hopes to advance cloud adoption by prioritizing key interoperability issues such as management, reference architectures, and hybrid cloud procedures, as well as security and compliance. The council says it plans to add to existing vendor-led cloud standards efforts by establishing a core set of client-driven requirements to ensure that cloud users will have the same freedom of choice, flexibility, and openness that would be available through a traditional IT environment.

Cloud computing has been a focal point in recent years for organizations wanting to change where they store information, and that was a driving force behind the council’s efforts to make it more accessible. “The CSCC was created as an advocacy group to give end-users a greater voice in the cloud computing market and to provide a forum for the exchange of ideas between organizations facing similar challenges in the move to cloud computing,” says Melvin Greer, senior fellow and chief strategist for cloud computing at Lockheed Martin and chair of the CSCC steering committee.

CSCC Goals

The council has four primary purposes, according to Greer: to make the needs of the cloud users an integral part of the development process; to develop or solicit materials for the benefit of end users who are interested in or are in the process of making the transition to cloud computing, with these materials helping in the transition; to have a say in the new cloud standards development process and allow end users’ perspective to be represented in that process; and to promote the discussion of the adoption process between end users and those considering cloud adoption.

CSCC is working toward a more widespread adoption of the cloud and plans to demonstrate the value of cloud computing to end-user organizations through events, whitepapers, best practices, and by encouraging active participation, Greer says. Members will share what works and what doesn’t in their cloud adoption journey, which can lead to a lower cost of IT deployment, business agility, and strategic innovation.

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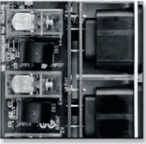
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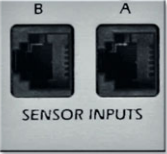
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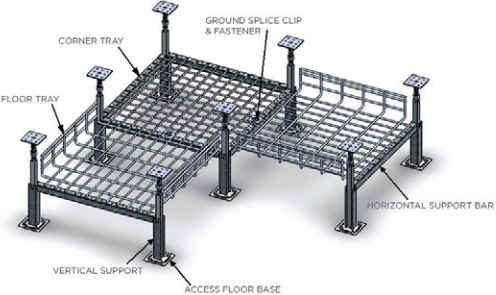


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Product

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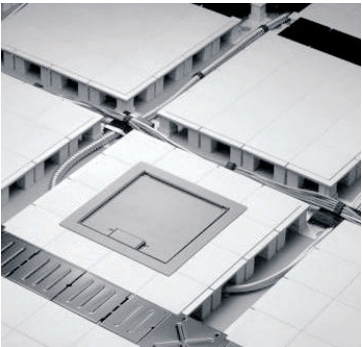
Best For: Storing excess fiber cable in entrance facilities and intermediate and main distribution frames.

Price: Starts at \$29.95 for 12-inch diameter

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Product

Information Support Concepts ConnectFloor Modular Computer Floor



Description

The ConnectFloor Modular Computer Floor from Information Support Concepts is a cable management solution designed to provide flexible functionality that is affordable and simple to implement. Similar to Lego building blocks, the company says, you can use the modular pieces to assemble the ideal cable management setup to suit your exact cable-routing needs.


- Less than 3 inches high for a low profile that fits almost any room
- Easy to install, with no special tools required
- Options available for carpet squares and floor power boxes
- Easily reconfigurable and reusable

Best For: IT labs or areas where instant floor cable management is required.

Price: Varies based on square footage; for example, 1 to 3,000 square feet cost \$10.10 per square foot

Contact: (800) 458-6255 | www.iscdfw.com

iStar ClayTek WA-CM1UB 1U Cable Management Rack Kit



iStar's ClayTek division provides an economical and effective solution for cable clusters. The WA-CM1UB takes up only one unit of space in standard 19-inch racks and enclosures and helps to keep cables organized. Cables can be easily threaded through the panels, and excess wiring can be stored inside the management casing. ClayTek also offers a 2U model, the WA-CM2UB.


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PDU Cables Air-Guard Cable Seal



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- Flexible, simple cable routing via removal of floor tiles without disconnecting equipment
- Reduces air loss in plenum-cooled floors and improves underfloor static pressure
- Extends life of cooling equipment

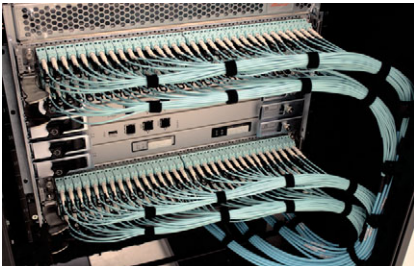
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Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

Management

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CTI's Quantum Cabling Solution is a user-friendly, highly efficient cable management solution that lets users cable a fully loaded enterprise-class director in half the time of traditional cabling methods. The Quantum is highly manageable and improves troubleshooting and move/add/change activities as compared to traditional cabling methods when deployed with TIA-942-compliant solutions. The Quantum Cabling Solution can handle the highest port count hardware on the market while utilizing the least amount of valuable rack space. It's currently available for Brocade and Cisco 9513 enterprise-class directors; additional configurations are available upon request.

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- 1U and 2U cable tie organizers
- 8- and 11-inch Velcro cable tie options
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Best For: Enterprises that want to route their cables neatly and securely without a lot of hassle.

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Device Technologies Spring-Fast SL Series Encapsulated Metal Grommet Edging



The high-performance SL Series grommet edging from Device Technologies is the company's next-generation wire protection solution. The SL Series meets specifications for Telcordia; BICSI; UL94V-0; and a multitude of performance attributes across various industries, including aerospace, HVAC, medical, power, and transportation. As with all Spring-Fast grommet edging series products, the SL requires only finger pressure to snap on, locking into place to conform to edge requirements. It offers a smooth protective cable, wire, and fiber interface on edges of cabinets, enclosures, and rack sheet metal and/or sharp edges of composite, plastic, or perforated materials.

- Available in a range of sizes with application thickness of 0.02 to 0.13 inches
- RoHS/REACH compliant
- No adhesives needed
- Reels or cut to length
- Indoor/outdoor

Best For: Data centers; telecommunications, equipment rooms, and lab spaces; access floors and underfloor cable management; and racks and chassis.

Contact: (800) 669-9682 | www.devicetech.com

PDU Cables UL Listed Power Distribution Cable Assemblies



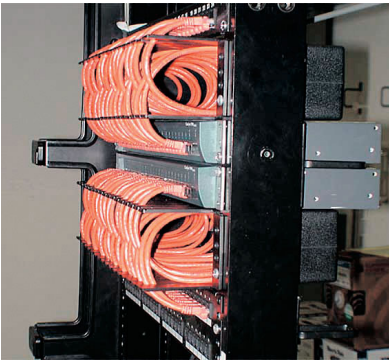
Manufacturer of UL Listed, underfloor power distribution cable assemblies, PDU Cables is fast, reliable, and knowledgeable while remaining cost-effective in providing the industry's highest-quality power cables. Use pre-fabricated, color-coded, and labeled cables to excel in data center cleanliness and organization. UL Listed and Hi-Pot tested, every cable is guaranteed not to fail. PDU Cables provides customers with 24-hour turnaround and standard transit times of one to three days to most U.S. locations (cable expedition available). Currently more than 5,000 data centers use PDU Cables' products to save time and labor and to reduce overall project costs.

- UL Listed and tested power distribution cables
- Molded cord assemblies
- Drop-down SO cord

Best For: Raised floor data center applications.

Contact: (866) 631-4238 | www.pducables.com

Rackmount Solutions Neat Patch Cable Organizer



Tired of messy networks? Place the Rackmount Solutions Neat Patch kit between a switch and a patch panel, and you'll never have another cable mess. We guarantee it!

- Promotes bend radius compliance in patch cable management
- Patch cables are easier to trace from panel to electronics
- Priced less than the leading brands of horizontal management
- Uses a patented plastic molded design that is non-conductive. Wire with confidence there will be no electrical issues such as surges and grounding since the plastic fingers are not riveted to metal or metal D-rings.

Best For: Enterprises building a new network or wanting to clean up an existing installation.

Price: Starts at \$59.34

Contact: (866) 207-6631 | www.rackmountsolutions.net

Rackmount Solutions Rack-ups



The Rack-ups wire management straps from Rackmount Solutions are designed to help manage and safely secure electrical, CATV, and fiber-optic cables. Made from Velcro® hook-and-loop tape, Rack-ups will not cut or pinch cords like plastic ties. The hook-and-loop tape makes it easy to adjust, remove, and/or add cords. These straps have a 0.25-inch brass grommet, so they can be nailed or screwed to equipment racks, brackets, shelving, walls, and ceilings, keeping cords safely out of the way.

- Available in three models: plain, grommet, and buckle
- 0.75- x 9-inch hook-and-loop tape
- Comes in black, with other colors available on request




Best For: Data centers in need of an easy way to better organize and manage cabling.

Price: \$7.50 (plain, pack of 10); \$9.95 (grommet, pack of 10); \$12.97 (buckle, pack of 10)

Contact: (866) 207-6631 | www.rackmountsolutions.net

Portable Cooling

| | | | |
|-------------|---|--|---|
| Product | Black Box 24U ClimateCab NEMA 12 Server Cabinet | Black Box 42U ClimateCab NEMA 12 Server Cabinet | Black Box ClimateCab NEMA 12 Wallmount Cabinet |
| |  |  |  |
| Description | <p>Climate-controlled protection found in Black Box's 24U ClimateCab Server Cabinet lets you install servers without the need for additional cooling or costly infrastructure. These enclosures are NEMA 12 rated, meaning they are ideal for use in indoor locations with falling dirt; circulating dust, lint, and debris; and dripping or splashing liquids.</p> <ul style="list-style-type: none">• Save energy by cooling just the cabinet• Includes a 6,000 BTU air-conditioning unit• NEMA 12 rated for protection• Only 51 x 28 x 31.5 inches, so it can fit where space is limited <p>Best For: Housing network equipment outside the protection of a climate-controlled data center.</p> <p>Price: \$4,249.95</p> <p>Contact: (877) 877-2269 www.blackbox.com</p> | <p>The Black Box 42U ClimateCab NEMA 12 Server Cabinet can accommodate larger systems that reside in areas without adequate climate controls, letting users avoid making costly infrastructure changes. These enclosures are NEMA 12 rated for use in indoor locations with falling dirt; circulating dust, lint, and debris; and dripping or splashing liquids.</p> <ul style="list-style-type: none">• Save energy by cooling just the cabinet, not the entire room• Includes an 8,500 BTU air-conditioning unit• NEMA 12 rated for protection• 40-inch depth accommodates most servers <p>Best For: Server installations outside the protection of a climate-controlled data center.</p> <p>Price: \$5,499.90</p> <p>Contact: (877) 877-2269 www.blackbox.com</p> | <p>Secure wallmount ClimateCab cabinets from Black Box provide a compact way to protect and cool sensitive components. Users can install the NEMA 12 rated wallmount cabinets in indoor environments where falling dirt; circulating dust, lint, and debris; and dripping or splashing liquids would otherwise cause problems for equipment.</p> <ul style="list-style-type: none">• Compact wallmount design saves space• Operates on a standard 115V power source• Single- or double-hinged• Choose from a cabinet with a fan or an 800 BTU air-conditioning unit <p>Best For: Remote sites that have limited space and conditions that are potentially damaging to delicate electronics.</p> <p>Price: \$2,695.95 for single-hinged and \$2,795.95 for double-hinged</p> <p>Contact: (877) 877-2269 www.blackbox.com</p> |

| | | | |
|-------------|--|---|--|
| Product | MovinCool Office Pro W20 | MovinCool Office Pro 12 sold by Rackmount Solutions | MovinCool Office Pro 18 sold by Rackmount Solutions |
| |  |  |  |
| Description | <p>The latest addition to MovinCool's portable air conditioners, the Office Pro W20 has an impressive 15,700 BTU/hr cooling capacity. Because the unit is watercooled, customers need not worry about locating the Office Pro W20 in areas without local hot air exhaust: The unit simply requires a water supply and a standard 115V outlet.</p> <ul style="list-style-type: none">• Programmable digital controller enables weekend and after-hours cooling• UL listed for safe operation• Accepts a wide water supply temperature range (40 to 90 F) and a minimum water pressure of only 12 pounds per square inch• Connects to a fire alarm system to allow emergency shutdown <p>Best For: Office spaces and IT equipment rooms where heat exhaust is not available.</p> <p>Price: \$4,375</p> <p>Contact: (800) 264-9573 www.movincool.com/dealer.php</p> | <p>The MovinCool Office Pro 12 is a portable spot-cooling air conditioner designed to lower operating temperatures of computers and networking, communications, and office equipment to maximize reliability and hardware life span. The Office Pro 12 is self-contained, portable, and features an electronic thermostat and a programmable control panel for tailored cooling when and where you need it most.</p> <ul style="list-style-type: none">• Provides 12,000 BTU/hr of cool air maximum spot cooling• Programmable digital controller• Operates on a standard 115V power source• No costly installation necessary• Maintains ideal operating temperature for heat-sensitive electronics, down to 65 degrees Fahrenheit <p>Best For: Offices filled with heat-generating electronics.</p> <p>Price: \$3,295</p> <p>Contact: (866) 207-6631 www.rackmountsolutions.net</p> | <p>The MovinCool Office Pro 18 offers superior cooling capacity without requiring a nonstandard power source. This portable air conditioner protects sensitive data and electronic systems from loss and failure, acting as an insurance policy for your infrastructure. The Office Pro 18 features an intuitive control panel that lets users designate when the unit operates.</p> <ul style="list-style-type: none">• Provides 16,800 BTU/hr of cool air maximum spot cooling• Operates on a standard 115V power source• Programmable controls enable weekend and after-hours cooling• No costly installation necessary• UL Listed for safe operation <p>Best For: Heat-sensitive office and data systems.</p> <p>Price: \$3,655</p> <p>Contact: (866) 207-6631 www.rackmountsolutions.net</p> |

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

KwiKool KPO 12-23 & 12-43 12-TON



The KwiKool KPO portable air conditioners deliver a powerful 12 tons (139,400 BTU/hr) of cooling capacity in a compact size. The unit measures only 62 x 32 x 64 inches—about the size of a typical 5-ton unit—and it's small enough to fit through a standard door.

- Condenser and cold supply and return air can be ducted up to 60 feet using high-static blowers
- Internal circuit breaker allows easy hookup to 208/230-volt (12-23) or 460-volt three-phase (12-43) models
- Integrated phase and power monitor provides protection from electrical power quality issues
- Low ambient temperature controls with a condenser operating range of 30 to 100 degrees Fahrenheit

Best For: Large computer rooms and emergency cooling during outages.

Price: Rentals from \$450 per day or \$1,325 per week

KwiKool SAC 1411



As one option in KwiKool's Strategic Air Center series of portable spot coolers, the SAC 1411 features microprocessor digital controls and an Easy-Touch control panel. The unit is an air-cooled, 1.15-ton portable spot cooler that operates on a 115V/15A circuit. The SAC 1411 also supports 460 CFM evaporator airflow and 1,200 CFM condenser airflow.

- Provides 13,850 BTU/hr of cool air at 95 degrees Fahrenheit at 60% RH
- Operates on a standard 115V power source
- Operating range between 60 and 110 degrees Fahrenheit
- Easy-access hinged panel with Kwikloks

Best For: Computer room, server closet, or warehouse use.

Price: \$3,495

MovinCool CM12 & CM25



The MovinCool CM12 and CM25 are ceiling-mounted air conditioners that are just 15.5 inches (CM12) and 20 inches (CM25) tall, making them compact enough to fit above a drop ceiling for spot cooling space-limited installations and server rooms. The units free up valuable floor space and feature built-in flanges and mounting brackets. The CM25 features a wall-mounted electronic controller that lets users monitor and troubleshoot problems.

- The CM12 provides 10,500 BTU/hr of cool air at 80 degrees Fahrenheit at 50% RH and operates on a standard 115V power source
- The CM25 provides 25,000 BTU/hr of cool air at 80 F at 50% RH and operates on a 208/230V power source
- Can fit into tight ceiling spaces, freeing up floor space

Best For: Space-limited equipment rooms and cramped server and telecom closets.

Price: \$2,895 (CM12), \$6,995 (CM25)

Contact: (800) 264-9573
www.movincool.com/dealer.php

MovinCool Office Pro 36 sold by Rackmount Solutions



The MovinCool Office Pro 36 delivers 36,000 BTU/hr of spot cooling for sensitive equipment. The portable, self-contained air conditioner requires no costly installation and features an intuitive control panel that lets users program the unit to operate after hours or on the weekend.

- Provides 36,000 ETL-verified BTU/hr of cool air maximum spot cooling
- Operates on a 208/230V power source
- Features an AFCI plug for added safety against electrical arcing
- Supports plug-and-play condensate pump
- Easy-to-use programmable controls
- Self-contained, portable, and easy to set up and operate

Best For: Servers, routers, telecommunications, and other heat-sensitive equipment.

Price: \$6,980

Contact: (866) 207-6631 | www.rackmountsolutions.net

MovinCool Office Pro 60 sold by Rackmount Solutions



The MovinCool Office Pro 60 delivers up to 60,000 BTU/hr of cooling capacity. This portable air conditioner is designed to manage temperatures for computer networks, communications equipment, and office electronics. The self-contained Office Pro 60 is easy to install—just position the wheeled unit, plug it in, and turn it on.

- Programmable digital controller enables weekend and after-hours cooling
- Operates on a 220V power source
- Provides cooling in the low 60s to maximize the life span of heat-sensitive electronics
- Condensation pump included for uninterrupted operation
- UL Listed for safe operation

Best For: Large office spaces and computer rooms filled with heat-sensitive electronics.

Price: \$9,995

Contact: (866) 207-6631 | www.rackmountsolutions.net

MovinCool Office Pro 63 sold by Rackmount Solutions



Like its sibling the Office Pro 60, the MovinCool Office Pro 63 delivers up to 60,000 BTU/hr of cooling capacity and is ideally suited for the demands of large office spaces and heat-sensitive electronics installations. This portable air conditioner is self-contained and operates on 460V power for as little as 15 cents per hour.

- Programmable digital controller enables weekend and after-hours cooling
- Provides cooling in the low 60s to maximize the life span of heat-sensitive electronics
- Condensation pump included for uninterrupted operation
- UL Listed for safe operation

Best For: Large office spaces and computer rooms filled with heat-sensitive electronics.

Price: \$12,495

Contact: (866) 207-6631 | www.rackmountsolutions.net

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Future-Proofing Your Data Center

What do you need to make sure your data center is ready for future demands and changes in storage, networking, power, and other areas? We talked with some insiders to find out.

Storage That's Built To Last | 21

■ Take the drain placed on IT budgets by the poor economy, add in some organizations' continuing lack of support for data center initiatives, and it's no mystery that companies are re-evaluating how their systems will hold up over time. Storage is no exception.



Plan For The Servers You'll Need Tomorrow | 22

■ Most servers last three to five years in a production environment. However, if data center managers don't make their server purchases wisely, they may have to retire some servers early, or they may drive up their operating expenses unnecessarily.



Future-Proofing Your Data Center Networking | 23

■ Considering your network environment—what it looks like and what you're trying to do—is the first step in figuring out how to future-proof your data center network infrastructure.



Powering Your Data Center's Future | 24

■ Making smart investments in power is crucial, but can also be challenging—an IT manager has to anticipate changes, evaluate equipment based on long-term goals, and work within a specific budget.



Storage That's Built To Last

System Flexibility Is Key To Longevity

TAKE THE DRAIN PLACED on IT budgets by the poor economy, add in some organizations' continuing lack of support for data center initiatives, and it's no mystery that companies are re-evaluating how their systems will hold up over time. Storage is no exception, and data centers looking for solutions should consider how today's investments will meet tomorrow's needs.

Key Points

- A current usage assessment will help you forecast future capacity and performance needs.
- Better reliability and cost are making solid-state drives increasingly attractive.
- Carefully weigh future costs and flexibility when considering proprietary platforms.

"We see most of our customers no longer having the luxury of the three-year refresh," says Chris Gruber, director of product marketing for storage solutions at D-Link Systems (www.dlink.com). His team reports a number of customers citing five-year refresh cycles, and customers regularly tell him, "Our board of directors doesn't believe in investing in IT. Whatever platform we put in place today is going to have to be in place for a minimum of five years." No matter what refresh cycle you're on, investing in storage solutions that can support your organization now and into the future is how smart data center managers do business.

Scale Out Instead Of Up

As IT budgets continue to run lean, data centers may find that scale-out solutions offer a more economical long-term alternative. "The big shift you're seeing from storage manufacturers is the move from scale-up technologies to scale-out or node-based architectures," says John Cole, technology architect at Ahead (www.thinkaheadit.com). "I think the move to scale-out storage architectures or grid-based storage architectures allows a lot more flexibility because it solves that upfront capital problem initially." It's a solution that may not only address an enterprise's concerns with scaling—Cole says it could also solve potential migration challenges. He encourages organizations to start evaluating scale-out architectures and determining if the upper limits are appropriate for their needs.

However, Jonathan Halstuch, COO at RackTop Systems (www.racktopsystems.com), isn't sure that scale-out solutions are ready for prime time. "Storage is growing, but the management software and framework for managing large scale-out storage is not as mature and robust as it needs to be for multi-petabyte implementations," he says. "Users will want to get more feedback from their storage solution in real time about how it is performing. Users need to be able to define customer rule sets for moving tasks or jobs manually or automatically from one area to another." He believes these features need to evolve beyond their current rudimentary level to be robust enough to provide the automated analysis and performance reports users expect.

Give Solid-State Drives Another Look

Falling prices and improving reliability will make solid-state drives a more feasible and attractive solution for many data centers. "There will be a wider acceptance of the use of flash and solid-state drives in enterprise storage," Halstuch says. "SSD is hitting a great price and reliability point. With an SSD solution, customers can get the high I/Os they need for virtual desktop infrastructure solutions or other I/O-demanding requirements."

Cole agrees that SSD technology is likely to play a larger role in how data centers manage storage. "Just from a pure density and performance perspective, it's driving the move toward solid state," he says. "And the fact that as solid-state manufacturing technology has matured, the price relative to rotational media has cratered in the last 18 months, to where it's now actually very feasible to consider an entirely solid-state deployment in the data center."

Maintain Flexibility

Gruber says data centers should be wary of the potential risks and costs of

it's also cost that's built into proprietary platforms," he says. Being locked into buying hardware from any specific vendor could become a serious bottleneck as your needs evolve, and back-end or hidden costs could be an issue when sourcing high-performance drives, which is where Gruber says there's likely to be a big markup. "Cost and having proprietary platforms locking into disk drives and other components, that's really what's holding people back at the moment," he says.

Flexibility will continue to be the key to success. "Technology continues to evolve at a faster pace each year, which means there is value in flexibility," Halstuch says. "Look for solutions that don't create vendor lock-in or force you to pay for everything up front. How can flexibility be a bad thing?" He adds that component prices continue to fall, and purchasing just the parts you need right when you need them will give you the best chance at a good price.

The Challenge Of Disappearing Hardware

The data center of the future is likely to have less storage hardware, but that doesn't mean a reduction in performance expectations. Gruber says he's already seeing a shift toward supporting more server applications, both physical and virtual, with less hardware. He anticipates similar trends in storage. "We see a big push for increase in performance, both transactional and throughput, and as it relates to the data center, a big push for higher densities and faster performance, both transactional and throughput on the supporting storage array," he says. Cost is among the reasons for the reduction in equipment. "With less hardware, you've got less service costs; you've got less management costs; [and] you've also got a reduction in service, power, and heating," Gruber says. When evaluating storage options, consider which solutions will enable you to reduce hardware without impacting performance. [E]



proprietary platforms. "When I say cost, it's not just cost for the technology but

Best Investment For The Future: Build A Roadmap

Defining needs and expectations is critical to selecting the best storage solution for your organization. "I find that the biggest challenge a lot of data centers have is they have no good way of reporting on historical storage growth," says John Cole, technology architect at Ahead (www.thinkaheadit.com). "And therefore, they have no good way of forecasting expected storage growth."

It's tough to make a good long-term decision if you aren't sure what your needs will be down the road. Cole recommends creating a solid, realistic capacity forecast as a first step. "A lot of organizations are starting to turn to services partners or value-added resellers or technology partners that provide some sort of assessment," he says, and those partners can then help data centers develop the crucial architectural roadmap that helps them understand where they've been and where they're going.

Pentagon Releases Cyberspace Strategy

The Department of Defense recently released the first cyberspace strategy for the United States. Strategic initiatives were outlined in the document, describing the DoD’s preventive plan against cyberattacks. The department listed its top initiatives, which include building relationships with U.S. allies and partners to collectively strengthen cybersecurity, partnering with other U.S. government departments and the private sector, developing new defense operating concepts, and treating cyberspace as an operational domain. Particular threats of the most concern include destructive actions, such as corruption or manipulation, that would threaten networks; DOS attacks that would threaten the availability of networks; and ultimately the theft or exploitation of data.

Update: AMD Revenue Mixed

AMD revenue from the second quarter of 2011 took a dip recently, according to the company. Figures of \$1.57 billion for the second quarter were down 5% from the same time last year. Non-GAAP net profit totaled \$70 million, \$13 million below the numbers reported the same time a year ago, with earnings of 9 cents per share. Net profit on a GAAP basis stood at \$61 million, which was an improvement over \$43 million in losses during the same period last year. Computing solutions division revenue was \$1.2 billion, a flat year-over-year performance, while revenue from the graphics division was \$367 million compared to \$440 million the year before.

Republicans Propose Telecom Subsidy Cuts

Rep. Eric Cantor, House majority leader, proposed diverting \$1 billion from the Universal Service Fund, which subsidizes rural telephone and broadband service, to deficit reduction. Several telecom trade groups and the National Association of Regulatory Utility Commissioners have spoken out against the proposal. The USF, which is overseen by the Federal Communications Commission, is funded with mandatory contributions from telecom companies that are passed on to consumers as monthly fees. The U.S. Telecom Association sent a letter to the White House and congressional leaders stating that the proposed cuts would in effect impose a new tax on consumers and hinder efforts to deploy broadband service throughout the country.



Microsoft Reports 30% Profit Increase

Microsoft posted \$5.87 billion in net income during its fiscal fourth quarter, a 30% increase. Revenue rose 8.5% to \$17.4 billion, slightly more than analysts expected. However, revenue from the Windows operating system fell 1% to \$4.7 billion, the result of weak PC sales; this is the second consecutive quarter that Windows revenue has fallen. Microsoft also reported that it benefited from increased enterprise demand for its servers and Office software. Office revenue rose 7% to \$5.8 billion, and server and tool revenue increased 12% to \$4.64 billion. Sales in the company’s entertainment division rose 30% to \$1.49 billion, thanks to strong sales of the Xbox 360 console and Kinect controller.

Plan For The Servers You’ll Need Tomorrow

Future Considerations Include Virtualization, Cloud Computing, Multicore Systems & Blades

MOST SERVERS LAST three to five years in a production environment. However, if data center managers don’t make their server purchases wisely, they may have to retire some servers early, or they may drive up their operating expenses unnecessarily. Poor server purchases could even make it more difficult to upgrade infrastructures in the future.

IT managers who are hoping to “future-proof” their facilities need to start planning now for how data center changes will impact the type of servers they need to invest in and how those servers should be deployed and managed.

Big Changes Ahead

In the coming years, you’ll likely be using your servers differently than you have in the past. For example, IDC estimates that by 2014, 70% of all server workloads will be virtualized. Virtualization often goes hand in hand with consolidation efforts, as companies seek to save costs by reducing the number of servers they manage. In addition, virtualization also often serves as a precursor for a move to the private cloud, which is growing in popularity.

Tomorrow’s servers will likely also look different than yesterday’s—both inside and out. Dave Petersen, group manager of platform product marketing for industry-standard servers and software at HP, notes that multiprocessor systems are growing in popularity. “Core counts are continuing to go up almost exponentially,” he says.

In addition, form factors are also changing, with blades becoming much more common. IDC reports that in the first quarter, revenues for blade servers grew 23.8% year-over-year, more than twice the growth rate of the server market as a whole.

How Can You Prepare?

So what should you be doing to prepare for all these changes? Experts offer several tips.

Pay more attention to cooling. Blade servers typically require more cooling than traditional servers. Katie Broderick, IDC’s senior research analyst for enterprise platforms and data center trends, notes that virtualization also often results in hot spots in the data center. To cope, Broderick says, “You’ll want to be thinking about getting the cooling as close as possible to the servers, so that means rack-level, row-level cooling, instead of whole room.”

For larger data centers that are implementing virtualization and the cloud on a large scale, experts recommend that they deploy

DCIM (data center infrastructure management) software, which allows facility managers to see where VMs are moving around the data center and modify their cooling appropriately. According to Jeffrey Hewitt, research vice president at Gartner, DCIM solutions help companies take a more holistic approach and provide greater efficiencies in all areas.

For smaller data centers that use CRAC units, Broderick notes, “Simple things like airflow are important, even if you don’t have dedicated cooling for that room or for that server closet.” She also advises that companies look at technology such as variable-frequency drives, which can adjust the speed of the fan to cope with changes in temperature caused by variable workloads.

Think about high availability. In virtualized or cloud environments, availability and reliability become much more important. Jean Bozman, IDC’s research vice president for enterprise servers, notes that if a mid-sized enterprise has 10 VMs running on a particular server, it’s likely that the entire company is accessing that server. In those cases, she says, high availability becomes more critical than ever.

One indication that enterprises might be growing more concerned about availability is the increasing sales of high-end servers. Both Gartner and IDC have reported recently that server revenues have been growing faster than unit shipments—an unusual trend in the server market. This indicates that companies believe they’ll get a better ROI—and a more future-proof data center—if they invest in more robust, more expensive hardware.

Buy the best systems for your workloads. Experts also recommend that data

Key Points

- Managers who are purchasing new servers need to think about the effects virtualization, cloud computing, multicore systems, and the shift toward blades will have on their data centers.
- Cooling and high availability both become much more important in virtualized or cloud environments.
- Buying energy-efficient hardware, matching systems to workloads, and grouping similar servers in designated zones can help drive down operating expenses.

center managers give some hard thought to the types of applications and workloads that will be running on any new servers they purchase. Petersen says managers should ask, “What are the right workloads for the right architecture to make the most efficient use of the resources that you have?”

He says that when purchasing multicore systems, “IT managers need to decide what the right strategy for them will be. Do I want to put a whole lot of virtual instances on a 4P or an 8P system, or do I want to put fewer virtual instances across a larger number of 2P servers?”

Hewitt adds that he’s seeing a trend toward “specific workloads for specific architecture.” For example, one type of server might be better for managing large databases, while another might be a better choice for processing online transactions.

Implement a “zone” offense. Broderick notes that some larger data centers have begun grouping together hardware that is well suited for particular types of virtual workloads. For example, they may have database zones or Web infrastructure zones. Grouping types of servers together makes it easier to address the unique power and cooling needs of various types of servers, and it can also help improve your energy efficiency.

Hewitt and Broderick both also suggest that managers hoping to future-proof their data center server infrastructures think about modular or containerized solutions, if they haven’t already gone that route. Broderick notes that it’s easier to move toward a zoned data center if you have a modular infrastructure, because you can simply build out your next module with servers, power, cooling, networking, etc., designed for particular types of workloads. ■

Best Investment For The Future: Energy-Efficient Hardware

If you truly want to future-proof your data center, you’ll need to examine the energy efficiency of your servers—both the ones you already have and any new ones you purchase. Jeffrey Hewitt, research vice president for Gartner, points out that energy costs are expected to rise in the next few years, and companies need to find ways to keep energy costs at bay.

Dave Petersen, group manager of platform product marketing for industry-standard servers and software at HP, says that the first step is to “understand what equipment you have and how old it is and how energy-efficient it is, because you’ve got to plan and get ready now for putting in your next-generation infrastructure.”

Future-Proofing Your Data Center Networking

Emerging Technologies Such As Virtualization & Cloud Computing Demand A Network That’s Speedy & Reliable

NETWORKING WITHIN THE DATA CENTER is going through transformative changes. Virtualization and outsourcing have enabled organizations to shrink core data center infrastructure. At the same time, the need for greater throughput, along with the complexity engendered by VMs, means that traditional networking management norms no longer apply.

Key Points

- Keep abreast of emerging networking standards so that you can plan your future-proofing plans accordingly.
- A good unified fabric system will improve integration, scalability, and performance for virtualized environments within the SME and as SMEs increasingly use cloud providers for application and infrastructure services.
- Consider investing in a convergent infrastructure that can make the network environment more consistent for VMs.

“The challenges are just unfolding, so you want to make sure you don’t find yourself at an evolutionary dead end,” says Omar Sultan, senior manager of data center architecture at Cisco Systems (www.cisco.com).

Sultan says that considering your network environment—what it looks like and what you’re trying to do—is the first step in figuring out how to future-proof your data center network infrastructure. “How you’re going to use your network will help you figure out how and when to spend your dollars effectively,” he says.

What are some other tips for future-proofing your networking infrastructure? Here are a few things to keep in mind—and not surprisingly, virtualization plays a big part in the process.

Keeping Up With The Standards

For his part, Sultan recommends keeping track of evolving network standards. “Then you have some level of assurance in whatever decisions you make,” he says.

These standards include those specific to networking done in virtualized environments. For example, the IEEE standard 802.1Qbg addresses edge virtual bridging so that the hypervisor environment can be linked to the first layer of the physical switching infrastructure. “You want to look for that kind of support when investing the next generation of infrastructure,” Sultan says.

Infrastructures Using Virtualization Should Converge

Convergent infrastructure is one of the biggest trends in networking technology today because of its ability to bundle myriad different IT technologies into a unified and efficient overall data center solution. According to Sultan, converged infrastructures tend to be virtualization-friendly and offer easier support of live migrations of virtual machines.

“Converged infrastructures means you have to buy fewer switches and less equipment overall,” Sultan explains. “Also, they

tend to offer robust orchestration; simplify management; and reduce operational costs because you need less power, cooling, and cabling.”

In addition, converged network infrastructures let you build “big fat pipes at Layer 2, which is where virtualization lives right now, to match the kinds of traffic patterns we see in highly virtualized environments,” Sultan says.

A lot of activity and conversation takes place in a typical virtual server cluster of 30 to 40 VMs. “You want to be able to give servers the biggest pipes they can have to talk to each other effectively,” Sultan says.

Unify The Network Fabric

To leverage convergent infrastructures, Sultan recommends looking at networking equipment such as unified fabric iSCSI channel or Fibre Channel over



Ethernet that work across modular and fixed platforms. Unified fabric can handle 10 Gigabit Ethernet protocols needed for fast connections between virtual servers and between virtual servers and virtual storage.

“It’s a good foundational direction because essentially it allows you to take a virtual machine that’s running, move it to wherever you need to in your data center, and be sure wherever it lands, it will have consistent access to firewall protection and storage, among other things,” Sultan says.

In the Cloud

SME data centers are leading the charge toward cloud providers to handle core structures that don’t need to be in-house. “Cloud is more cost-efficient and gives SMEs access to a higher level of IT capabilities than if they tried to build and maintain it themselves,” Sultan says.

So what do data center managers at SMEs do as they continue to transition toward hybrid environments that have a combination of physical, virtualized, and cloud-based components? Sultan says that as you prepare for a networking infrastructure refresh, first focus on making your environment as homogeneous as possible to make virtualization easier and to focus on unified fabric solutions that can support virtualized and traditional data center networking.

“That way, if you want to move your Layer 2 domain from your data center in San Francisco to one in Los Angeles, you can do so and know wherever your virtual machine lands, it will have consistent access to firewall protection and data storage, adhere to compliance regulations,” and be as reliable as a physical server is—for a lot less money, Sultan says. ■

Survey Finds CFOs Are Stepping Up Involvement In IT Investment Decisions

CFOs are taking a larger role in deciding which IT projects receive investment, according to a study from Gartner. The study, which Gartner conducted along with two financial management organizations between October 2010 and January 2011, found that CFOs acting unilaterally have made 26% of IT investments, but CIOs acting alone made only 5% of investments. Gartner also found that 42% of IT organizations report directly to the CFO, and 33% report to the CEO.

John Van Decker, a research vice president at Gartner, says the increasing role of CFOs in technology investment decisions makes it important to ensure that CFOs are educated on technology and that CIOs and CFOs are able to work well together. “In situations where there is a high level of CFO involvement, the CIO needs to ensure that the CFO is equipped with the right level of information on technologies and the business value they can bring,” he says.

Gartner also asked respondents what guidelines they use when making investment decisions. Seventy-two percent said they will make investments in areas “where they see a competitive advantage driven by IT.” Sixty-five percent of senior financial executives ranked business intelligence as the most important technology initiative; 46% said enterprise business applications, such as enterprise resource planning, were priorities.

Making IT Relevant To Business

Gartner’s findings suggest that CFOs and other senior financial executives are taking a larger role in IT investment decisions so that they can better align IT initiatives with business processes. Only 30% of the study’s respondents believe that IT delivers business benefits, and only 35% of organizations see IT as a “strategic driver of business performance.” Just 32% of CFOs see the CIO as a strategic partner.

In order to get the most value out of technology investments, the IT and business sides of an organization need to understand each other’s priorities, Gartner says. One thing the two departments can do to make sure they have an effective relationship is to develop an IT steering committee or center of excellence so that IT leaders can jointly manage projects with business leaders, Van Decker says. CIOs can also take steps to help IT become more business-oriented.

“Ensure that there is not just education/training on technologies, but also in business areas and project management,” he says. “Recruiting from within the business into IT is an excellent way to get business experts within the IT organization.”



■ North American Mobile Network Capacity Nearly Exhausted

According to a survey from Credit Suisse, North American mobile networks are already at 80% capacity—the highest capacity to date. The global average for mobile network capacity is 65%; Western Europe, for example, actually lowered its capacity over the last two years from 66% to 56%. The survey revealed that North America has essentially reached its threshold and that service providers will be forced to purchase network equipment to offset the capacity limitations. Currently in the United States, 38% of base stations have capacity issues. North American vendors expect the capacity rate to lower to around 72% within the next two years.

■ US-CERT Director Out In Sudden Move

There's been a changing of the guard at the top of the U.S. Computer Emergency Response Team; US-CERT Director Randy Vickers is stepping down. An email announcing the move was sent to the staff of the Department of Homeland Security's Office of Cybersecurity and Communications by Roberta Stempfle, acting assistant secretary. According to the announcement, Lee Rock, now deputy director for US-CERT, will fill in for Vickers until a permanent replacement is found. Commenting on Vickers' departure, Tom Kellerman, chief technology officer at AirPatrol, pointed to the intense pressure of the position—dealing with a marked increase in cybersecurity incidents.

■ Public Health Information Exchanges Hampered By Government Regulations

Healthcare vendor monitoring firm KLAS published a report, "Health Information Exchanges, Rapid Growth in an Evolving Market," dealing with the governance and funding of HIEs (health information exchanges), and it shows growth in private health information exchanges has far outstripped that in public exchanges. Since last year, the number of live public HIEs has risen from 37 to 67. At the same time, private HIEs have shot up from 52 to 161. The report also showed that government red tape was hindering the development of public exchanges. More than 230 HIE customers were interviewed for the study.



■ Medical IT Sees Major Changes With ICD-10

The federal government is enacting a new medical coding system to keep better track of diagnoses and treatment of illnesses, and there are some who feel it will never be done on schedule. Medical facilities and insurance companies must move from the current ICD-9 coding system to ICD-10 by October 2013. Smaller healthcare providers, however, will fare better financially than the larger hospitals, which could end up spending \$2 million to \$5 million for the transition; large healthcare groups could be out to the tune of nearly \$20 million, according to IT estimations.

Powering Your Data Center's Future

How Can You Make Sure Your Power Equipment Investments Will Last?

OF ALL THE EQUIPMENT in a data center, power systems may be the most important, considering that none of the other equipment will run without them. Making smart investments in power is crucial, but can also be challenging—an IT manager has to anticipate changes, evaluate equipment based on long-term goals, and work within a specific budget.

According to industry trend watchers, changes in power equipment for the next few years are likely to include the use of high-voltage DC power systems, which don't have some of the losses associated with

"IT loads are evolving rapidly, requiring the power planner to consider use of higher-density loads, such as blade servers, which consume more power than rack servers," Hall says. "IT should deploy power architectures that integrate, scale, and provide high reliability."

Included in this mix will be power backup, power conditioners, power distribution, cooling, racks, cables, and power management software, he notes. Concentrating on using these efficiently and with best practices will drive down energy use and lower TCO.

Align With Business Goals

Hall adds that managers should look beyond current needs by aligning their horizon with the overall business plan, which is typically a three- to five-year view of a company's operations and goals.

Business plans that take Human Resources plans and capital into consideration are more comprehensive and more likely to capture future requirements that result in better predictability of power consumption, Hall notes. This lifecycle approach can help determine future needs and avoid over- or underestimating future power requirements.

This strategy will also help identify when more capacity is required to maintain operations in the future. For example, Hall says, if a facility can accommodate downtime for a complete system shutdown, but the IT manager foresees this changing

in the future, he can plan to migrate toward a higher tier structure and plan architecture and equipment purchases accordingly.

Practice UPS Consolidation

In order to protect UPS investments, enterprises should consider consolidating UPS units so fewer of them are running, notes Mark Lafferty, director of strategic solutions and services for servers and storage at CDW (www.cdw.com). Often, these units operate at higher capacity and have more energy efficiency than people realize, and they're not being utilized to their full potential.

Best Investment For The Future: Predictive Monitoring Of Batteries

Successful lifecycle management includes predictive monitoring, according to Jim Hall, marketing manager at Staco Energy Products (www.stacoenergy.com). One element of this approach that's gaining attention is proactive battery monitoring, which is the first line of defense during a power outage. Battery life will vary based on elements such as how often the batteries are used, temperature of the battery cabinet, ambient temperature, and other factors. Keeping UPS batteries cool will extend their service life, as well.

"Monitoring battery strength and knowing when they are nearing the end of their service life allows IT managers to schedule their replacement at a convenient time," Hall says. "This has a significant impact on ROI, since this remains the leading cause of power interruptions during an outage."

Key Points

- Understand your total cost of ownership with all power equipment, as that can help drive more efficiency and create a better power equipment mix.
- Align power requirements with overall business goals to anticipate changes in company growth and scope.
- Determine your tier level and compare equipment based on common features and functionality.

Lafferty believes that many IT departments over-engineer the UPS to accommodate future growth, but that leads to maintaining the UPS at a much lower capacity than necessary. When that happens, energy efficiency can plummet, and ROI suffers.

Check Your Tier

When looking for equipment that is "future-proofed," an IT department should determine what tier level is required for business. Not all applications require Tier 4 operation, Hall points out, so a data center manager should consider looking at which areas require less-than-continuous operation, which requires less initial cost and operating expense.

When moving tiers, consider that certain maintenance actions still require a complete load shutdown. Adding UPS units, a UPS bypass, and UPS control means that there's a dual critical bus pathway if a data center migrates from Tier 1 to Tier 2, for example. "Corresponding considerations must be taken into account when migrating to higher tier structures in terms of architecture, layout, and equipment purchases," Hall says.

Comparison Shop

When considering new equipment purchases, Hall recommends that data center managers do an apples-to-apples comparison because topologies can vary. Look at strength and length of warranty as a means of verifying confidence, he advises. The number of providers, and their focuses, varies widely depending on whether they concentrate on larger or smaller data centers.

If shopping on behalf of an SME that needs less complexity, don't be tempted by products with more functionality than needed. Also, Hall adds, plan according to the future needs of the business rather than current needs.



double-conversion UPS; continuing traction in flywheels and fuel cells; and the use of containerized data centers because they offer faster deployment and potentially better power and cooling. Another potential strategy for data centers is using servers that have internal battery backup, which would eliminate the need for UPS systems. This trend is driven by availability and efficiency, but it's not cost-effective yet because battery backups are more expensive than UPSes.

Staying on top of these types of trends is important, especially given fluctuating adoption rates. While monitoring the market, though, it's possible to do some future-proofing even as equipment and strategy changes loom. Here are some tips on how to make the most of your expertise and funds.

Know Your TCO

When selecting power systems, focus on those that result in the lowest total cost of ownership, advises Jim Hall, marketing manager at Staco Energy Products (www.stacoenergy.com). He notes that these costs include the price of acquisition and also operating and maintenance costs, with an eye toward energy-efficient practices.

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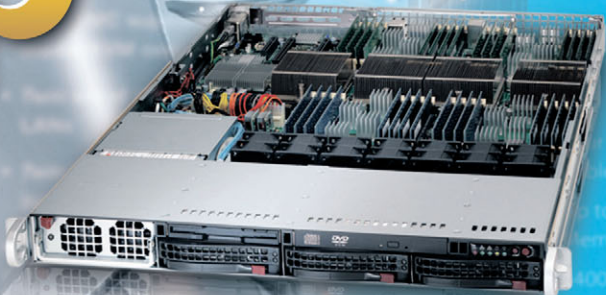
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IBM's Server History

Setting Up The Foundation Of IT As We Know It With 100 Years Of Technology

THIS YEAR, technology giant IBM is celebrating its centennial, which marks 100 years of technological innovation for “Big Blue.” We interviewed Guro Rao, an IBM Fellow and chief systems engineer for the IBM Systems & Technology Group, about how IBM has helped to evolve the world of IT, as well as where the company believes the data center is heading in the future.

Processor: How have servers changed over the past 20 years, and what has IBM done to respond to consumer and business needs?

Rao: Servers have become more powerful, more energy-efficient, more affordable, more flexible, and more secure and use up less space—all reflective of ongoing business needs. For example, years of buying different IT equipment have created “server sprawl” for many data center managers, so systems and costs have multiplied while budgets have increased. IT has been entrapped in endless cycles of rigid, commodity systems that were never designed for ultimate flexibility. Commodity systems can become dangerous traps for server sprawl and inflexibility.

IBM has responded by taking a more flexible approach to computing. In simpler terms, it's about future-proofing your systems because you don't know what's ahead. The best example of future-proof technology today is the mainframe, which allows running programs (clients' true assets) that were developed a long time ago to get the benefits of modern technology and allow modernization of those assets.

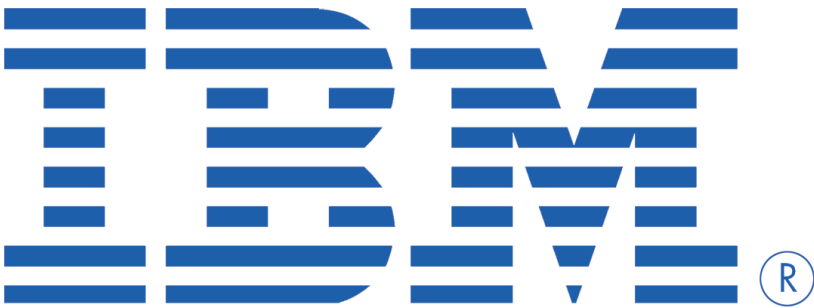
Processor: Why has IBM decided to make a change to focus on optimized systems in recent years?

Rao: Some advocates profess that the only way to reduce the cost and complexity of computing is to adopt one kind of computer for the data center. Organizations that rely on a single computing platform or a single delivery model do so at their own peril, because not all computing tasks are created equal. The same goes for computing systems. Consider

computing systems as you do a vehicle. There are many different types: pickup trucks, sports cars, minivans, etc. Each serves a different purpose. We can't choose one car, get rid of the rest, and think it will fit everyone's needs. Diversity allows us to choose the most

Processor: How does managing data in the cloud make the job of an IT administrator easier?

Rao: It allows end users direct access. As an employer of 400,000 people worldwide, IBM runs the world's largest private cloud



Key Innovations Over The Years

According to Guro Rao, an IBM Fellow and chief systems engineer for the IBM Systems & Technology Group, the company's server division has had a number of important historical highlights.

- Along with IBM's magnetic tape drive, the 1956 release of RAMAC (Random Access Method of Accounting and Control) essentially launched the data storage industry. The RAMAC was the world's first hard disk drive. It was the size of two kitchen refrigerators set side-by-side and contained 50 disks spinning at 1,200rpm, supplying data at 100,000bps. The RAMAC allowed enterprises to think about data in new ways—mixing and matching it on the fly and allowing each bit of information to be read or changed randomly.
- IBM's transistor DRAM (Dynamic Random Access Memory) increased memory density and reduced the cost with each generation. It has become the standard in the industry for RAM and enabled the miniature direction that the industry is still pursuing.
- The IBM mainframe was invented more than 45 years ago, and it has handled the workloads of hundreds of disparate industries. The mainframe enabled banks to complete online transactions in real time; it has guided mankind to the moon; and its innovative binary compatibility capability continues to be the gold standard for mission-critical secure computing and application and infrastructure investment protection.
- The RISC (Reduced Instruction Set Computing) processor design and the IBM Power System were developed by IBM as a new way to design processors for higher performance using compilers and simplified microprocessor design. These techniques have been widely adopted in the industry. Early Power System-based “Deep Blue” beat Gary Kasparov, a world champion chess player, which was the first time a computer beat a human world class player in a game that was thought to be the exclusive domain of humans.
- “Watson” is also at the heart of IBM's computers. It leverages leading-edge Question-Answering technology, allowing a computer to process and understand natural language. It incorporates massively parallel analytical capabilities to emulate the human mind's ability to understand the actual meaning behind words, distinguish between relevant and irrelevant content, and ultimately demonstrate confidence to deliver precise final answers. In February, Watson made history by not only being the first computer to compete against humans on television's venerable quiz show “Jeopardy!,” but by achieving a landslide win over prior champions Ken Jennings and Brad Rutter.
- In 2010, for the first time in years, IBM demonstrated its continued investments in servers through a complete refresh of all of its systems. The company also announced new versions of all of its computing systems, making the most innovative technologies more accessible to clients.

efficient and effective car to complete the desired task. One type of car for everything would also sacrifice performance. Creating a sports car with the flatbed of a truck would result in a car that poorly performs either task.

Processor: What is smarter computing, and why does IBM believe that it's the next area of IT?

Rao: Smarter computing offers a strategic IT blueprint for a smarter planet. It's timely because IT now has the opportunity to play an even greater role in driving business transformation by enabling innovative new business opportunities and models, new ways to deliver technology-based services, and new ways to understand the world. When you design IT as a “holistic” system that incorporates Big Data (data from traditional and new sources) for better decision making, optimized systems for superior economics, and cloud to reinvent business processes and drive innovation, your ROI and competitive advantage can be exponentially better. Smarter computing for IBM ultimately means helping clients extract stronger IT economics and potentially change the pace of business, competition, and business innovation. Our goal is to help any enterprise innovate while doubling IT capacity on a flat budget.

computing environment for business analytics. In 2009, we launched Project Blue Insight. Blue Insight is able to access business intelligence from hundreds of databases—more than a petabyte of information—and makes it available to users direct from their desktops. At the end of 2010, Blue Insight had 165,000 users and more than 100 data warehouses ported to it. By the end of 2011, it will be accessible through our intranet to more than half of IBM's employees. Some of the results so far include on the spot skills gap analysis by HR professionals, cash position forecasts by IBM treasury analysts, and marketing trends for our marcom teams. Analysis that used to take weeks or months to perform is now being done in hours or minutes.

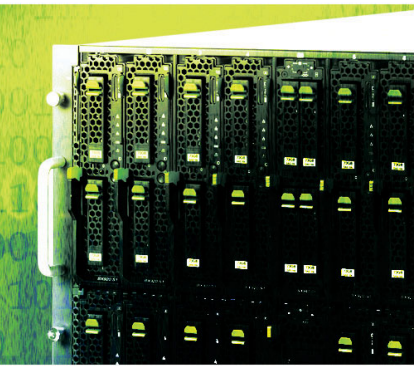
Processor: What should *Processor* readers expect in the near future from IBM, and what goals are on the distant horizon?

Rao: As true to IBM's heritage, IBM will continue to innovate for enhanced client value. This means that, if the past year's activities—such as a complete system refresh toward a brand new server lineup and Watson—are any indicators of what's possible, readers can expect smarter systems that can flexibly meet changing business needs. **P**

BUYING GUIDE

BUYING TIPS:

Blade Servers



UNLESS YOU HAVE an unlimited infrastructure budget, installing or adding servers isn't something you take lightly. Blade servers can help you save space and energy, but you have to know what's best for your business before you can make a purchasing decision that's both fiscally and functionally wise.

According to Ken Oestreich, vice president of marketing for Egenera (www.egenera.com), data centers are becoming increasingly virtualized and require more flexibility, so it's better to assess value based on how versatile the blade server is rather than on specifications alone.

Oestreich also points out that workloads are now more dynamic and multiserver environments frequently change, so efficiency should always be a top priority. As a result, blades, memory, storage, and I/O should be regularly repurposed.

Buyers' Checklist

- ☒ **Base value on versatility, not traditional specs.**
Because the blade market is advancing rapidly, you'll want to look for solutions that can be easily upgraded.
- ☒ **Prepare for multifunctional blade environments.**
Want a resourceful server environment? Make sure the blade servers you buy are energy efficient.
- ☒ **Plan for memory expansion.** Don't limit your memory to cut on cost, but go for increased expandability.
- ☒ **Buy for rapid I/O delivery.** If you're hosting VMs, you'll need fast and reliable throughput.
- ☒ **Consider converged infrastructure support.** A Unified Computing environment will make it possible to support shared SAN storage.
- ☒ **Look for efficient energy monitoring features.**
Systems that are capable of shutting down power to each blade can save up to 80% of their idle energy consumption.

Here are some other key factors that you should consider:

Large memory capacity. As the trend toward server virtualization continues, Oestreich says, performance will dictate more virtual machines per physical server. Be sure to choose a blade with a lot of room for memory expansion if your consolidation efforts reach 10 or more virtual machines per blade.

Fast I/O. Look for versatile I/O that can deliver rapid throughput. "If blades are to be used to host VMs, then fast I/O—10Gb or more—will become a requirement," Oestreich says. "Plan ahead for big pipes to avoid blade-level bottlenecks."

Converged infrastructure support. Oestreich says next-generation data center servers will increasingly use a converged infrastructure management approach, also known as Unified Computing. "Blades will have to support virtual I/O and generally not have onboard disk storage, instead opting for shared SAN storage to maximize blade repurposing," Oestreich says.

Energy monitoring. "The blade controller should absolutely be capable of monitoring, if not managing, energy at the chassis and blade level," Oestreich says. "For particularly dynamic workload levels, consider systems that can actually shut down power to each blade and even curtail sections of the power supply. An idle blade can use as much as 80% of the power as a fully utilized blade."

Maintenance utilities. Minimizing downtime for servers that run

Key Terms

Clustering. A way to connect servers to share the processing loads and support failover.

Converged infrastructure. An IT architecture in which a blade server's I/O, networking, switching, and storage is virtually managed.

Converged networking. One cable carries all the I/O traffic and runs data and storage traffic together.

Enclosure. The primary component for housing servers. They are available as multi-functional passive chassis and can offer high-density scalability and cooling management.

I/O virtualization. When a single physical I/O connection is virtually represented in NICs, HBAs, and other I/O ports, there is no need for multiple I/O cards.

Stateless blade. Using diskless blades with virtualized I/O to repurpose as needed.

24/7 is a major consideration, so choose a vendor that offers maintenance utilities.

Other important issues. Have you considered the costs associated with enclosures, cabling trays, and power supplies? Does the server include a preinstalled operating system? If not, this is another feature for IT decision makers to work into the budget. In addition, be sure to plan for redundant components, including duplicate drives, cooling fans, and other recovery features if and when devices fail. A worthwhile warranty will include three years of coverage along with next-day, onsite service with service for mission-critical applications. [P](#)

FEATURED PRODUCT

A Storage Server For Many Applications

Chenbro's RM235 Lineup Will Meet Your Enterprise Needs

CHENBRO HAS ADDED to its popular modular chassis products with its new line of RM235 modular storage chassis. In all, there are five configurations available with support for eight, 12, or 24 bays. The modular, high-density design is ideal for data duplication, broadcast storage, network accelerators, and other environments that require a large amount of storage in a 2U rack space.

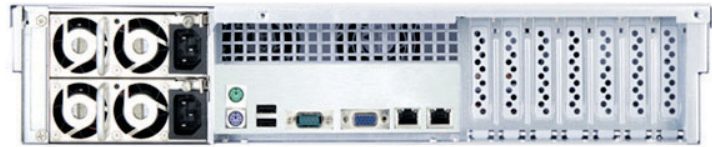
Backplane Design

Chenbro designed the RM235 so that the chassis base or drive module can be recycled if you need to change configurations down the line, which is a good fit for organizations that need flexibility with their storage. The RM235 comes in three standard Mini-SAS backplane (8 x 3.5-inch, 12 x 3.5-inch, and 24 x 2.5-inch) options, and it supports Mini-SAS expander backplanes of 12 x 3.5-inch or 24 x 2.5-

inch. The various backplanes provide you with hotswap capabilities, and you can access it all from the front cage. All the backplanes feature SATA ports that run at 6Gbps to deliver fast I/O for your business.

Ease Of Access

All models of the RM235 support tool-less 1U sliding rails that allow the modular server to be pulled out of the rack just like a drawer when it requires service. Additionally, the front access drive cage can be easily switched among the standard and expander backplanes. In the RM23508, there's even sufficient space to mount a 2 x 3.5-inch internal OS drive and install one slim ODD inside the chassis. The RM235 supports motherboards



up to 12 x 13 inches (ATX, CEB, and EEB), and you can select main boards that operate either Intel or AMD DP quad.

Features

The RM235 line is offered with either a 2U single or 1+1 redundant power supply, the latter providing a

Chenbro-optimized C2W-5620V and C2W-5820V PSU. The flexible power supply choice means that the server can meet a wide range of applications, and you can alter it to suit the different needs of your enterprise should you opt to use the server for a different job in the future. For security, there's an intrusion switch, and Chenbro includes a 600mm cable to

give you some extra room when routing the cable through the chassis. You'll also find two front USB 2.0 ports for convenient access for peripherals and other USB devices. To cool the RM235, there are three 80mm pulse-width modulation fans that feature anti-vibration mechanisms. [P](#)



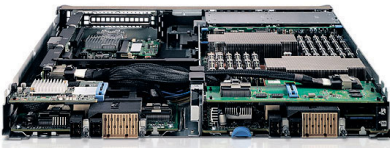
| Model | HDD Backplane | PSU | Rear Window | Slide Rail |
|-------------|---------------------------|--------|-------------|------------|
| RM23508M2-L | 6Gbps Mini-SAS | Option | Low Profile | Option |
| RM23512M2-L | 6Gbps Mini-SAS | Option | Low Profile | Option |
| RM23512E2-L | 6Gbps Mini-SAS w/Expander | Option | Low Profile | Option |
| RM23524M2-L | 6Gbps Mini-SAS | Option | Low Profile | Option |
| RM23524E2-L | 6Gbps Mini-SAS w/Expander | Option | Low Profile | Option |




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Blade Servers

| | | | |
|-------------|---|--|---|
| Product | AMAX BladeMax AS-7200G | Appro GPU Expansion Blades based on the Appro GreenBlade System | Dell PowerEdge M610x |
| |  |  |  |
| Description | <p>The AMAX BladeMax AS-7200G is an advanced 7U 20-GPU blade server delivering high density and performance with a maximized number of GPUs per 1U rack space. The AS-7200G offers a reliable and energy-efficient architecture boasting 8,960 CUDA cores and 20.6 teraflops of precision performance in a single chassis. The system delivers the maximum performance with the best CPU-to-GPU balance and optimized I/O.</p> <ul style="list-style-type: none">• Supports 20 Nvidia Tesla GPUs in 7U space• Delivers 8,960 CUDA cores and 20.6 teraflops of precision performance in a single chassis• Boasts up to 94% power efficiency with Platinum-level redundant power supplies• Delivers maximum performance with the best CPU-to-GPU balance and optimized I/O <p>Best For: Compute-intensive scientific and research environments utilizing high-performance computing applications in a broad array of markets.</p> | <p>The GPU Expansion Blades from Appro are based on the company's GreenBlade System and are available in a 5U form factor. They're configured as a CPU/GPU combination supporting five dual-CPU server blades with five dual-GPU expansion blades per system. The system offers configuration flexibility, density, reliability, and energy efficiency with affordable mix-and-match compute blade options.</p> <ul style="list-style-type: none">• Two GPUs per blade server based on Nvidia Tesla M2050• Two CPUs per blade server based on AMD Opteron or Intel Xeon processors• Five blade servers per system total of 10 CPUs/10 GPUs in a 5U form factor• Up to 4,480 GPU cores per system• GPU power control capabilities for thermal management and power savings <p>Best For: Energy, government research, university, finance, and bioinformatics institutions.</p> | <p>The PowerEdge M610x blade server from Dell can support up to two standard full-height and full-length PCI-E cards. The M610x comes with supplemental power and modular cooling with support for one 300-watt or two 250-watt cards.</p> <ul style="list-style-type: none">• Equipped with the Nvidia Tesla GPGPU card that can support 400 gigaflops of double-precision computations• Houses the Intel Xeon 5600 series processors in addition to 192GB of DDR3 memory• Features two embedded Broadcom NetXtreme II 5709 Gigabit Ethernet NICs with failover• Management tools include Dell Management Console, Altiris Deployment Solution, integrated Dell Remote Access Controller, and vMedia <p>Best For: Organizations seeking the reliability, efficiency, and manageability of a blade server solution but with unique I/O or computational needs.</p> <p>Price: Starts at \$2,985</p> |

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|-------------|--|---|---|
| Product | HP ProLiant BL685c G7 | NEC Express5800 SIGMABLADE B120a-d | NEC Express5800 SIGMABLADE B140a-T |
| |  |  |  |
| Description | <p>The HP ProLiant BL685c G7 features the latest AMD Opteron 6100 series processors, multicore scalability, and integrated HP Virtual Connect FlexFabric architecture, which helps simplify network connections and lower infrastructure costs. The HP ProLiant BL685c G7 server delivers twice the performance at prices starting at 30% lower than the previous generation.</p> <ul style="list-style-type: none">• Simplifies management and lowers infrastructure costs by converging LAN and SAN traffic over the same flexible connection• iLO3 (Integrated Lights-Out 3) Advanced technology helps simplify remote management• HP Insight Control software improves management productivity while reducing operational expenses <p>Best For: Virtualization and compute-intensive database applications.</p> | <p>NEC's Express5800 SIGMABLADE two-socket blade server is built without any internal storage; it can boot from a virtualization SAN or with NEC AD106a attached storage. Key benefits include Intel Quick Path Interconnect technology for enhanced overall performance. The B120a-d's expanded I/O capabilities support up to six Gigabit ports and can manage more I/O bandwidth.</p> <ul style="list-style-type: none">• Features the Intel 5520 Chipset• Includes 12x DDR3-1066 Registered DIMM with 96GB max capacity• Comes with NEC EXPRESSCOPE Engine 2 server management software• Compatible with NEC H-Chassis and NEC M-Chassis• Integrated video memory <p>Best For: Server environments where a SAN-based boot environment is best.</p> | <p>With four-socket support and 16-core processing, the NEC Express5800 SIGMABLADE B140a-T blade server is designed for longevity. The B140a-T can efficiently run standard applications, clustered applications, databases, and hypervisor platform solutions. The server is designed for virtualization and comes with 128GB memory capacity and expanded I/O Gigabit and Fibre Channel bandwidth. In addition, it's compatible with high-availability software and includes integrated system management features.</p> <ul style="list-style-type: none">• Shared server components mean reduced overall power consumption• Intel 7000 series four-socket Xeon processors offer high throughput• Up to six I/O Gigabit ports plus two Fibre Channel ports• ExpressBuilder software manages configuration and OS installation <p>Best For: Data centers interested in integrated system management through a virtualized environment.</p> |

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

Dell PowerEdge M710HD



The Dell PowerEdge M710HD is a two-socket, half-height, memory-dense blade server that offers tremendous I/O throughput, maximized memory density, and robust optional Intel Xeon 5600 processing power, all in an ultra-dense form factor with high availability. The M710HD also features enterprise-class redundancy with hot-swap fault-tolerant SAS or SSD hard drives and optional failsafe redundant embedded hypervisors.

- All the memory density of a full-height PowerEdge M710 (18 DIMMs) packed into an ultra-dense half-height blade
- Built-in simplified system management tools take the guesswork out of administration
- Flexible, robust throughput options for customers with networking or bandwidth needs that change and grow over time

Best For: Server rooms and corporate data centers that require a reliable, high-density blade solution that can maximize total RAM for virtualization and workload consolidation.

Price: Starts at \$1,996

Fujitsu PRIMERGY BX400



The PRIMERGY BX400 from Fujitsu is a compact rack-mount or floor-stand blade server that provides a “data center in a box,” encapsulating Intel Xeon servers and storage in an all-in-one bundle. With an Executive Dash Panel that provides a common interface to multiple administrative duties, the BX400 is aimed at small to medium-sized enterprises that want to minimize their investment in servers and storage yet still have a sophisticated high-end server/storage solution with room to grow. Augmenting its storage capabilities, the BX400 integrates the NetApp Data ONTAP-v storage management software to offer NFS, CIFS, and iSCSI access along with the rich data management functions of the NetApp ONTAP-v software.

- Up to eight dual-socket BX920, BX922, or BX924 server blades
- Rackmount and floor-stand versions
- Only 45dB noise level, perfect for branch office application
- Executive Dash Panel to help non-IT specialists control all administrative duties
- Up to two integrated NetApp Data ONTAP-v storage solutions offering up to 6TB storage each

Best For: Small to midsized enterprises that want a simplified all-in-one solution.

Price: Starts at \$4,653

Fujitsu PRIMERGY BX900

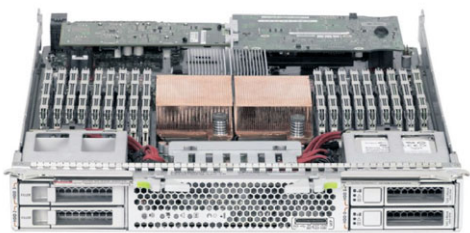


Fujitsu's PRIMERGY BX900 is a blade server that can host a wide variety of applications, such as general-purpose Web front ends, high-performance computing, optimized virtualization platforms, and large symmetrical multiprocessor database hosting. The BX900's use of Fujitsu's Cool Safe cooling technology, 92% efficient power supplies, and ServerView Power Management software provides dynamic power and cooling. The server offers high availability, protecting against failure and providing automatic recovery. Within the common administrative/network domain, the BX900 blade server can scale up to 72 blades.

- Includes the latest Intel Xeon 5600 and 7500 processors with up to 512GB of memory
- 18 half-height blades in a 10U chassis
- Up to eight I/O connection blades feature Gigabit, 10Gb, Fibre Channel, and InfiniBand
- Two types of storage blades, ranging from four-disk boot storage to 10-disk SAS enclosures

Best For: Data centers that would benefit from a flexible and dynamic server infrastructure in a cost-effective chassis.

Oracle Sun Blade X6270 M2 Server Module



The Sun Blade X6270 M2 server module from Oracle is ideal for virtualized application environments where efficiency and flexibility matter. Powered by the six-core Intel Xeon 5600 series processor, the Sun Blade X6270 M2 is easy to deploy and upgrade and is ideal for running virtualized business applications and enterprise collaboration workloads. With the combination of the Sun Blade Storage module, virtualized Network Express modules, the Sun Blade 6000 chassis, and Oracle Integrated Lights Out Manager, you get an efficient single-point management solution under one infrastructure, which helps to reduce complexity and OPEX costs.

- One or two six-core Intel Xeon 5600 series processors at up to 3.46GHz
- PCI-E ExpressModules enable each blade to have its own unique I/O configuration
- Full-featured management at no additional charge with Oracle single system management
- High-capacity memory with 18 DIMM slots
- 282Gbps I/O bandwidth for data-intensive workloads

Best For: Organizations using virtualized business applications or enterprise collaboration workloads.

Supermicro SuperBlade TwinBlade



As the newest addition to Supermicro's SuperBlade family, the innovative TwinBlade doubles the number of dual-processor compute nodes per 7U enclosure to 20, allowing for up to 120 DP servers per 42U rack for a dense, cost-effective solution. Based on the SBI-7226T-T2 blade supporting the latest Intel Xeon 5600 Series processors, this system delivers unprecedented performance per dollar and per square foot. Available with dual 40Gbps QDR InfiniBand switches, this blade solution features industry-leading 94% power supply efficiency.

- 20 DP (Intel Westmere and AMD G34) nodes in a 7U enclosure
- 128GB ECC-registered DDR3 per DP node
- Dual 40Gb InfiniBand, 10GbE, and 8Gb FCoE switches
- Dual 1/10Gb Layer 2/3 Ethernet switches
- Centralized remote management via IPMI 2.0 or KVM over IP

Best For: High-performance computing in data center, enterprise, and cloud computing deployments.

Contact: (408) 503-8000 | www.supermicro.com

Supermicro SuperServer 5086B-TRF



The SuperServer 5086-TRF from Supermicro is a high-performance 5U 8-way server that boasts Intel Xeon 7500 series processors. The system includes 10 PCI-E 2.0 expansion slots and 64 DIMM slots for up to 2TB of storage. You can use up to six onboard SATA2 ports, and the 2,800W redundant power supplies meet the 80 PLUS Gold standard.

- Supports up to 24 2.5-inch hot-swap SAS/SATA hard disk drives
- Onboard BMC (baseboard management controller) supports IPMI 2.0 and KVM with a dedicated LAN
- Features an Intel 82576 dual-port Gigabit Ethernet controller
- Main memory cards insert vertically into motherboard

Best For: Enterprises that need maximum scalability and a balanced server architecture.

Contact: (408) 503-8000 | www.supermicro.com

Spam Numbers Go Down, Targeted Attacks Soar

Cybercriminal attacks are increasing in frequency and, perhaps more importantly, in severity, according to Cisco. In its “Email Attacks: This Time It’s Personal” study, the company details the evolution of cyberattacks. Today, fewer mass attacks are being deployed as cybercriminals move to more targeted attack methods, such as spearphishing, scams, and malware, in order to gain higher profit.

According to Nilesh Bhandari, product manager for Cisco’s Security Technology business unit, there are three main causes behind the shift to targeted attacks. First, Bhandari says, the financial returns from mass attacks have decreased. Second, the risks of prosecution have increased. And third, targeted attacks are providing significantly better rewards to the cybercriminals, he says.

“Targeted attacks are highly customized threats directed at a specific user or group of users typically for intellectual property theft,” Bhandari explains. “These attacks are very low in volume and can be disguised by either known entities with unwitting compromised accounts or anonymity in specialized botnet distribution channels. As a result, they are more successful in luring victims than mass

attacks.” Cisco estimates that each victim of a targeted attack will suffer a \$250 loss, which amounts to a yearly benefit of \$200 million to the cybercriminal vs. \$50 million just one year ago.

Beware Of Targeted Attacks

Cisco’s report also highlighted U.S. law enforcement’s efforts to destroy the largest botnets across the globe. These botnets used traditional spam delivery tactics, such as via mass email. Although there was an 80% reduction in mass spam attacks in the past year, today’s targeted threats are much more profitable for the cybercriminal. These focused, hard-to-detect attacks gain attention from the user via SMS, social networking, and convincing email scams. Spearphishing attacks are particularly successful by utilizing seemingly legitimate content from a source that relates to the user in some way. Cisco revealed that 80% of spearphishing emails included a malicious link.

Bhandari recommends that consumers keep their guard up when approached by a third party online and beware of targeted attacks. “If a message is asking for personal information or directing people to a Web site that does so, please use extra caution,” he warns.

As for the enterprise, Bhandari says, organizations should deploy the best possible protection from targeted attacks. “Targeted attacks are continuing to increase at rapid rates and impact people in every organization, regardless of industry, geography, and size. Organizations should take every precaution in protecting their users from these.”

HOW TO Develop A Server Fault-Tolerance Strategy

Assume Server Failure & Watch The Fault-Tolerance Strategy Grow From There

DEVELOPING A SERVER fault-tolerance strategy needn’t be expensive and can offer IT managers great peace of mind, says Doug Grabowski, president of consulting firm Ubiquitour. Implementing such a strategy may, for instance, cost around \$5,000 and less than one day in setup time, he adds.

A strategy that involves failure recovery—that is, recovering lost data should the server go down—can be classified as a fault-tolerance strategy, Grabowski says.

Where To Start

To begin setting up the fault-tolerance strategy, Grabowski recommends IT managers first inventory their applications and classify them according to their level of impact to the enterprise should they go offline. Determine the cost of downtime for the most important applications, he says.

Setting up a server fault-tolerance strategy also begins with determining the most critical applications. Dave Connors, vice president of operations at Constant Contact, recommends managers look at the failure of any given component, then address that across services, starting with the highest business value first. He recommends IT managers then rank their applications in order of relevance to the enterprise.

An enterprise that sells products via the Internet would, of course, rank its Web presence as its most important service. “Think in terms of business continuity,” Connors adds.

quickly in the event more server space is needed, he says. It allows IT managers to balance loads by running on two or more cheaper servers rather than on one. And, of course, two servers help improve fault tolerance, he adds.

“Once you assume failure, you figure out how to horizontally scale that; this applies to cloud servers, too,” Connors says. “Assume failure and spread out the risk to help mitigate it overall.”

Connors recommends enterprises extend this horizontal model wherever possible to all the key services they provide, including email, for example. But, he says, the key is balance. Don’t buy more server space than would be needed for your enterprise; just be sure you can scale up quickly. “And don’t buy more hardware and bring it in-house,” he adds. “You can probably find a SaaS or cloud provider for your call center, for example.”

Local & Offsite

Ubiquitour’s Grabowski advises enterprises to think both onsite and off when it comes to servers. Small to medium-sized enterprises should start their server fault-tolerance strategy with a very simple step: take a local copy of servers and applications. This gives IT managers an onsite copy of their servers before they prepare to make all applications and data redundant, he says.

The copy can be taken via USB hard drive, a network-attached storage array, or

Key Points

- Developing a server fault-tolerance strategy needn’t be expensive or time-consuming to implement.
- By scaling servers horizontally—that is, taking advantage of offsite server space—enterprises can add more space quickly and have a fault tolerance strategy in place.
- Don’t overlook the importance of email as a critical application when setting a fault tolerance strategy.

housing that on a managed hosted server. This allows for offsite backup.

With the backup software and hardware, an agent is installed on all PCs within the server and all data is then backed up to the cloud. Redundant files are only saved once, which saves on storage fees, he says. It also gives users access to the most current saved version of their data as well as earlier versions saved.

These copies go beyond the simple Windows backup noted above because they allow you to access individual files, which isn’t possible with the built-in backup, Grabowski says. The hosted systems generally cost around \$4 to \$5 per month and 15 cents per gigabyte.

“A lot of people delete files from the server. There’s no recycle bin for server share,” he says. “But this way you can pop open

“Once you assume failure, you figure out how to horizontally scale that; this applies to cloud servers, too. Assume failure and spread out the risk to help mitigate it overall.”

- Constant Contact's Dave Connors

“How available does the service have to be? What if it fails? And what are my options to make it more highly available?”

Also, assume that the server that runs the application will fail, whether that server is onsite at a data center, with a hosted provider, or with a software-as-a-service provider, he says. “If I’ve put it in the cloud, I assume the cloud provider will fail,” Connors says. “So then I need another host that will provide that service, like another cloud provider or a managed service on an in-house server.” That method ensures data is backed up and redundant in case of server failure, he says.

For enterprises just starting out, Connors recommends using as many hosted applications as possible. For established enterprises, he recommends horizontally scaling.

Horizontal scaling is the model by which established enterprises buy server space on hosted servers on which they can scale up

another attached storage device, Grabowski says. Windows servers from 2003 to 2008 make it easy to snap a good copy of your server, as they contain a built-in backup program. Once you have a good backup, the infrastructure components you’ll need are relatively straightforward, he adds.

The first item on that list for local backup should be an external network-attached storage device, “but not like consumer stuff that’s going to blow up,” Grabowski cautions.

External NAS devices give you the benefit of the storage as well as the redundancy within the array, he says. Plenty of enterprise-level arrays exist on the market and generally cost around \$500. Those enterprises that hire an IT consultant can expect setup to take around one hour.


Next, Grabowski recommends taking a nightly copy of enterprise data using backup and storage software and hardware and

applications for them and restore last night’s version of the file.”

Back Up Email

When developing a server fault-tolerance strategy, don’t overlook the email application housed on the server, Grabowski says. “A lot of SMBs host email themselves, which is great in theory, but the problem is that there’s no redundancy,” he says. “If you lose the box, you lose your email server.”

Grabowski recommends a hosted Exchange program. Many believe hosted Exchange programs are slow, he says, but some providers have greatly sped delivery. Cost is around \$10 to \$12 per mailbox per month.

Removing all backup except for a simple local backup from the enterprise premises mitigates all risk, Grabowski says. “If you have a local power outage, go to your home PC and connect via the Internet to your files and email,” he says. In fact, he adds, by following a fault-tolerance strategy, enterprises will find their data center can be what Grabowski calls location-independent. So if that power outage or other disaster does strike the main data center, employees can use VoIP or can simply forward their work phone to ring at home or at another location. They’ll still have their work files and email. 

TOP TIPS

- **First rank all enterprise applications by order of importance,** then ensure the most important applications are backed up and made redundant.
- **House enterprise data onsite and offsite.** If one server should happen to fail, enterprise data will still be readily available.
- **Assume your primary source of server space—whether onsite or off—will fail.** That assumption makes it easier to begin setting up a strategy.

CASE STUDY

Advertisement

Improve Enterprise Storage

Aberdeen's AberSAN Z30 Helps Out The River City Internet Group

THE ABERSAN Z-SERIES from Aberdeen is designed to provide SAN enterprise storage environments with a scalable storage system that's as intuitive to use as network-attached storage. The file storage appliances can scale beyond 1PB and can be managed through a single Z-RAID array. River City Internet Group recently selected the AberSAN Z30 to help it keep up with the I/O demands of multiple virtual host machines that are constantly reading and writing production data.

High-Performance Storage

River City Internet Group was working with a hosting company that was looking for a high-performance storage system that's designed to be used with a server farm. Another goal was that the virtual server farm needed to be extremely flexible and cost-efficient. "We have found the AberSAN Z30 to be exactly what we needed," says Jeff Laird, systems architect for River City Internet Group. "It cost us 60% of what a similar system from another manufacturer would have cost, and it is providing us with performance we have not seen before from a storage system." The Z30 combines Fibre Channel and iSCSI block-level connections with multi-user network sharing to overcome storage and partition-size limitations.

The Missouri-based company needed fast drives in order to handle the potential I/O load predicted in developing a multinode virtual machine farm. The AberSAN Z30 can be built with hardware and Stripe, Mirror, RAID-Z1 (single parity), RAID-Z2 (double parity), and combinations of these. The Z30 can also be built using single, double, or triple parity with hot spares. Multilevel data protection prevents silent data corruptions and supports block- and file-based replication. The AberSAN Z30 is also capable of scaling to work with the growth of disk-based storage. For example, the Z30 uses the ZFS file system, which allows for unlimited snapshots, making it easy for you to back up stored data more often and, if necessary, restore files

quickly. Incremental data backups use less network bandwidth than large daily updates.

For speed, the AberSAN Z30 can use dual Intel Xeon 5600 or 5500 series processors and up to 192GB of memory. The Z30 can reach up to 48TB of raw capacity without using any storage expansions. The AberSAN also meets the needs of River City Internet Group's virtual machine farm through inherent I/O virtualization. There are hybrid storage pools with SSDs, as well as options for thin provisioning and cloud-ready storage capabilities. Also, unlike traditional solutions, IT staff will enjoy unlimited file system size.

The AberSAN Z30 also comes with the NexentaStor plug-ins. "The Nexenta software is very flexible and has allowed us to allocate and modify settings easily based on changing customer requirements," Laird says. "It was also easy to learn and provides excellent informational feedback." The NexentaStor software provides the high-performance features of the ZFS file system, including tools for in-line deduplication, data mirroring, WAN-optimized IP replication, and high-availability clustering.

The NexentaStor plug-ins are one of the main reasons that River City Internet Group selected Aberdeen. "[Aberdeen] offered a unique method for organizing and partitioning drives via the Nexenta software, which immediately made sense to us," Laird says. NexentaStor's VM Data Center plug-in is available to simplify the



performance to the number of targets available. With the 3U, 19-inch rackmount, "We chose to go with 10GbE fiber networking for its tremendous throughput capabilities and chose the fastest drives we could order so that the system could be used with an ever-expanding front-end environment," Laird says.

There is also a variety of NexentaStor plug-ins you can select to improve the capabilities of the storage system:

Delorean. This is a backup utility for Windows that functions as a backup, restore, and search tool. It includes a

Target FC. This plug-in is designed to use the AberSAN Z30 as a block-level target when working only with Fibre Channel. Target FC can also create logical groups of initiators and targets. For example, a common block management could allow a ZVOL or virtual block device to inherit the storage management policies unique to the ZVOL or protection scheme.

VM Data Center. The VM Data Center plug-in makes it easier to set storage policies for virtual environments and perform storage tasks, such as starting a VM. It

The AberSAN, featuring the Intel® Xeon® processor 5600 series, delivers exceptional quality with unified storage capabilities such as deduplication, virtualization, high availability thin provisioning, replication, and scale-out storage.

management of storage for a variety of environments, including VMware vSphere, Citrix Xen, and Microsoft Hyper-V. Companies can even create replication policies for each VM and perform most common management tasks through the plug-in.

Delorean is another helpful NexentaStor plug-in that allows companies to create ZFS-powered Windows backups. IT staff can use the 100 client licenses in Delorean to select local files and folders they want to protect, which means they'll be further replicated and protected through AberSAN.

Cost was also a major factor in the decision making process for the River City Internet Group. "The ROI for this project was unknown going in, and Aberdeen provided the best value for the equipment we needed," Laird says.

Z30 Performance Options

The Z30 allows you to scale the hardware by increasing memory available or CPU

client that runs on all user machines and the company servers, while the plug-in delivers the same features to the AberSAN Z30. Delorean supports combined backup and snapshot capabilities, as well as Windows VSS and other backup schedules.

HA (High Availability) Cluster. The AberSAN Z30 can use the HA Cluster plug-in to create two AberSAN instances that will be configured as an active pair. Each instance of the AberSAN provides you with high availability, and the shared storage is available from both appliances. If you want to protect your data, the HA Cluster plug-in can work with RAID and replication policies.

metaSAN. This management software provides high-speed file sharing with cross-platform workgroup collaboration. Multiple users can share data files, which is ideal for film and video editors, health-care specialists, and other environments where there's a need to access a common pool of data files.

can also help you discover all ESX or Xen servers on the VMs in the servers. The AberSAN Z30 and VM Data Center can close through the template function, which can quicken provisioning of identical VMs.

WORM. With this utility, IT staff can make any data folder into a Write Once, Read Many mode. The WORM utility works with all network content, including files, directories, and subfolders. ⓘ

Aberdeen AberSAN Z30

A 16-bay, 3U ZFS SAN storage appliance.

Expansion Options


- Seven full-sized PCI-E x8 slots, which allows for extra HBAs and NICs
- ZFS cache acceleration for L2ARC and ZIL
- Can add up to four JBODs (64 drives)
- Virtually unlimited expansion through HBAs over storage switches

Other Products Sold

Custom rackmount servers, storage servers, NAS (network attached storage), SAN (storage area network), and JBODs (Just a Bunch of Disks)

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Study: IT Staff Not Catching On To Consumerization Trend

There's a disconnect between employees and the IT department when it comes to the use of popular consumer technologies in the workplace, according to a recent survey from IDC. The Unisys-sponsored survey questioned 2,659 consumers and 564 upper-level IT personnel about how workers use technology and how ready companies are to meet the technology facilitation of IT consumerization, and one of the key findings was that IT underestimates the number of employees using consumer devices for work applications by nearly 50%.

For example, 34% of the director-level IT personnel thought staff were using their own smartphones to access business applications, while 69% of employees indicated that they used their smartphones for business applications. Similarly, 13% of workers said they are using their own tablets at work, and only 6% of IT personnel thought workers were bringing in tablets. Additionally, 87% of IT people believed that employees received their smartphones and tablets from the company; on the flip side, more than half of workers said that they purchased the mobile devices themselves.



The report also found that although PCs are still the main device employees use to get work done, workers are now using a combination of devices to accomplish their work, rather than solely the PC. Five percent of workers surveyed said that the smartphone was their most critical device for their work, while nearly all of the remaining said that a desktop PC (47%) or notebook (45%) was the most critical device.

Closing The Consumerization Gap

When asked if the IT department is moving to support the mobile services, 67% of IT respondents said they had no plans to modify the internal business applications for tablets and smartphones, and 89% said there were no plans to modify customer-facing apps for tablets or smartphones.

To help close the gap, the IDC suggests that the IT department will need to urgently accelerate the pace of mobile device support to maintain the growing rate of smartphones and tablets in use. Second, the report believes that enterprises need to use tools and procedures to understand what types of devices and applications are being used throughout the company. Based on the visibility information, IT should establish, or revamp, the company's policies, because the "just say no" policy isn't working. If IT supports the devices, there's at least a semblance of control.

PC & Mac Integration

Is It Time For Your Enterprise To Make The Move?

YEARS AGO, if you walked through an enterprise, you'd mostly see PCs on employees' desks. Step into an office today and you'll see PCs and Macs, proof that more enterprises are integrating the systems into the same environments.

Companies have been PC-centric for years and are now bringing the Mac OS into the enterprise. Spencer Belkofer's company, Internet marketing firm Lumin Consulting, has integrated new computers, but he did things differently and added PCs to his Mac setup. He explains that there were a number of applications he needed that were not available for the Mac. "And there are some applications that just don't run as well on Mac as they do on Windows," he adds.

Reasons To Consider Integrating

Conversions from PCs to Macs are driven by several key factors including consumerization, virtualization, top-down and bottom-up employee pressure, and the success Apple has had in the phone and tablet markets, according to Peter Frankl, vice president of Lifecycle Management at Absolute Software (www.absolute.com/en).

"Consumerization, which is related to Apple's success in the phone and tablet markets, appears to be the driving force for many non-standard Apple customers," Frankl says. "For example, I recently met with an IT executive at a large financial services company. He told me that although his company is a '100% Windows and BlackBerry shop,' employees have increasingly been bringing their own iPhones and iPads to work." The IT exec told Frankl that he estimated several thousand iOS devices were on his

There are situations where PC/Mac integration is a logical choice. The first instance is in industries where Mac applications are traditionally used, such as for graphic design, publishing, and advertising. In those situations, the editorial is likely done in a PC format while the design is likely to be created using a Mac. Second is in K-12 school settings. Whereas the administrative offices may use a PC environment, the computers the children use in classrooms are often Macs. Many families also are PC households, and the children need to be able to switch easily between platforms to complete their classwork while at school.

Why Some Don't Integrate

There are also companies that should consider integrating but don't. "The primary reasons companies avoid the switch are initial cost of ownership," Frankl says. "Macs tend to have a higher ICO, although many customers tell us that the total cost of ownership is, in fact, lower for the Mac. Many of our customers who have remained 100% PC have cited operating system training and support staff training as reasons to not switch to the Mac."

"There is an uptick in cost if you are an all-PC environment and you bring in a few Macs," says David Linton of Arobase Group (www.arobasegroup.com). "You either have to have your IT department be trained on both the Mac and the PC, or you have to hire an outside consultant to do the job."

However, the learning curve shouldn't be too difficult if the company does decide to provide training for its IT

Key Points

- Conversions from PC to Mac are driven by several key factors.
- Integration is about letting the employees use the tools they think are best or they are familiar with.
- Traditionally, Mac and PC environments have not played nicely together.

with the software, learn where the control panel is, and make that OS learn to talk to all of the mail servers.

Although it may not be difficult to learn the new OS, it can be time-consuming, Linton says. After breaking down costs, some enterprises realize it is less expensive to hire an outside support company than train or hire full-time Mac OS experts to complement the PC OS environment.

Challenges

There are certainly challenges to integrating PCs and Macs in the same environment. "Traditionally, Mac and PC environments have not played nicely together," Lofgren says.

That's a problem that Lumin's Belkofer faced in his integration. He installed one of the virtualization products necessary for the integration, as the new OS will work in a virtualized environment. The integration worked just fine, he says, until recently, when he loaded a newer version of the Mac OS. Since then, the integration has been slow to adjust. "Getting the applications you need is the easy part. The tricky part is getting things to react the way you want them to," he says.

Another major challenge is convincing your IT staff that the times have changed, making them realize tools do indeed exist to manage Macs as efficiently and in a scalable environment just like Windows computers. "The employees are usually prepared for, and in fact demanding, the change. Proprietary PC software used to be the biggest hurdle, but with virtualization that is no longer the case," Frankl says. "Software license management, patch management, power management, imaging, asset inventory, all of the facets of lifecycle management are automated and scalable just like on the PC side."

If your enterprise has not integrated OS platforms or has resisted the change, Lofgren says it might be time to reconsider. "We're seeing an increase in Macs entering the corporate environment," he says. "Enterprise is moving in the direction that will let employees use the OS platform that they want."

“There is an uptick in cost if you are an all-PC environment and you bring in a few Macs. You either have to have your IT department be trained on both the Mac and the PC, or you have to hire an outside consultant to do the job.”

- Arobase Group's David Linton

network at any given time. At first, the company banned the devices, but managers realized that wasn't an acceptable policy and could even result in employee retention issues. "To that end, the company is now in the process of defining a support mechanism for Apple devices and even considering allowing PC-to-Mac conversions," Frankl adds.

Anders Lofgren, GroupLogic's (www.grouplogic.com) vice president of product management, adds that the decision for PC/Mac integration depends on enterprise needs. "For some companies, the Mac is the best way to get the work done," Lofgren says. "It is about letting the employees use the tools that they think [are] best or that they are familiar with. And it can increase productivity."

staff. Before integrating systems, Linton says IT departments should purchase a few computers that have the new OS. The person responsible for servicing that OS would need to live on that system until he learns it thoroughly. He says that person should familiarize himself

Virtualized Environment

Lumin Consulting's Spencer Belkofer offers a few tips enterprises should consider before moving the OS platforms into a virtualized environment. Begin by researching the different ways to create a virtualized OS, and then decide what is best for your situation. Don't forget to note all costs involved to perform the integration and to sustain the new virtualized environment. Don't let the research intimidate you. It's easy to overthink the process. Then, after you've considered your options, use the recommended settings on the products and adjust as needed.

CLOUD TIPS & TRICKS

Building New Applications For The Cloud

Good Infrastructure & Test Environments Contribute To Success



DEVELOPING APPLICATIONS FOR THE CLOUD brings a host of new concerns to the table. Is your team prepared to support users on a new platform? Can your infrastructure handle the increased demand? We’ve rounded up some tips to help ensure that your team—and your data center—is ready to build applications that make the most of cloud technology.

Establish A Test Environment

Doug Durham, principal and CTO at Nebraska Global (www.nebraskaglobal.com), says that traditional testing environments involving on-premises labs don’t completely address cloud requirements. “When transitioning to cloud-hosted environments, teams may be tempted to continue to use these on-premises labs for doing quality assurance of the systems prior to deployment to the cloud,” Durham says. He cautions that teams often spend too much time in on-premises labs at the expense of building and deploying to a test environment in the cloud.

“There will obviously be a cost associated with hosting your QA and staging environments in the cloud, but deferring this testing until you’re close to your launch date invites a delay in your release as a result of unanticipated integration issues that would only be identified in a cloud environment,” Durham says.

Consider The Cloud-Readiness Of Supporting Systems

Cloud applications may place a new level of demand on underlying systems or parts of the data center infrastructure, and forgetting

to take these supporting players into account could hamper your application’s performance or usability. “The other piece that’s really important, that a lot of people don’t think about when they initially start looking at a cloud deployment, is how to deal with resources that don’t or cannot become part of that cloud,” says Ruston Vickers, founder and executive vice president of research and development at ITKO (www.itko.com).

He points to infrastructure pieces such as large mainframes and explains, “You’ve got to take that stuff into consideration, because you may not get the benefits you’re looking for from the cloud if the systems of record underneath are not able to handle that type of elastic demand.”


Learn To Manage Off-Premises Operations

Managing applications and operations in the cloud is different than in the traditional IT infrastructure, and a data center may find the new environment unfamiliar if its experience base has been limited to on-premises operations. “If you are in an organization where IT and operations [are] separate from product

development, I think it is imperative to incorporate this new paradigm into your build, deployment, and support planning early on in your development,” Durham says. “I could see where the excitement over pushing your applications to the cloud can cause some people to defer some of these important details until the end of their development cycles.”

Remember Your SLAs

New cloud applications often bring in different types of customers, such as mobile users, and the new dynamic could affect how

your team maintains its SLAs. “When you have a whole bunch of different consumers coming in, they’re all going to rely on those contracts to stay valid and appropriate,” Vickers says. He stresses the importance of developing applications in a way that ensures performance will scale with demand. “Now the contracts for these services and applications may change based on the devices or the particular type of consumer, but in order for you to ensure that certain ones don’t break, you’ve got to make sure you can validate in an automated fashion.” 

Best Tips

Maintain monitoring and diagnostics. Cloud infrastructures may be robust, but the applications aren’t immune to performance and availability issues. “I still feel it is extremely important to monitor the health and performance of cloud applications just as you would with your on-premises systems,” says Doug Durham, principal and CTO at Nebraska Global (www.nebraskaglobal.com).

Avoid vendor lock-in. Ruston Vickers, founder and executive vice president of research and development at ITKO (www.itko.com), says the cloud is in a state of rapid evolution. He encourages developers to be wary of proprietary technologies and to “try to build as agnostic as you can from an application perspective, so you can move if you need to.”

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■ IBM Finishes Strong Second Quarter

IBM reported strong second-quarter earnings that beat analysts' expectations. Net income increased 8% to \$3.7 billion; revenue jumped 12% to \$26.7 billion. Operating profits per share jumped 18% to \$3.09 per share. The company's systems and technology revenues rose 12%, software revenue increased 10%, and business service revenue rose 10% to \$15.1 billion. In a positive sign for future business, the company also gained \$14.3 billion in new contract signings, higher than most analysts' predictions. IBM also said that revenue from products and services related to cloud computing will double by the end of the year.

■ AOL Reorganizes Management

Jeff Levick, head of AOL's global advertising and strategy, will leave the company in AOL's latest management reorganization. CEO Tim Armstrong, an ad executive at Google before taking over at AOL in 2009, announced the changes in an internal memo. Levick was one of Armstrong's initial hires. Ned Brody will replace Levick in the new position of chief revenue officer and president of the company's advertising unit. Lauren Hurvitz, head of corporate communications, and Kathy Andreasen, head of HR, will also depart. Armstrong also announced that the company's marketing and corporate communications teams will merge into a single unit to be led by Maureen Sullivan.

■ Sustainability Benefits Of The Cloud Reviewed

The Carbon Disclosure Project released a study concerning the sustainability agenda at large, global firms. Companies with revenues totaling \$1 billion or more and with cloud solutions in place were reviewed in an effort to find cloud computing benefits; this included Dell, Citigroup, Boeing, Juniper Networks, and eight others. According to the study, if these large companies dedicate 69% of their infrastructure, platform, and software budgets to cloud services, CO₂ emissions would be cut by 85.7 million tons annually. The study predicts this budget allocation will be reached by 2020. Along with these sustainability efforts, companies are considering cloud solutions to lower costs—many anticipate cloud services will reduce their costs by 40 to 50%.



■ Open Cloud Initiative Pushes For Open Standards

The Open Cloud Initiative, an advocacy organization for open cloud computing standards, officially launched at OSCON 2011. The OCI is pushing for open cloud standards that will protect users' freedoms but still allow cloud vendors to make a profit. According to the OCI board of directors, cloud services should be interoperable with other services, be technologically neutral, have lowered barriers to entry or exit, be non-discriminatory, and offer open standards for formats and interfaces. Once it has fully defined open cloud standards, the OCI plans to accredit cloud products and services, which can then use the OCI badge as a differentiator.

SAN & LAN Convergence

The Benefits & First Steps For Switching To A Converged Network Fabric

RESEARCH GROUPS such as Forrester have been touting the convergence of SANs and LANs at the enterprise level, pointing out that companies can benefit from lowered hardware costs and simpler management. But the approach isn't for everyone. Challenges can crop up in forecasting, implementation, and even cabling, so it pays to plan ahead and create a successful transition strategy.

Benefits To Convergence

Most traditional IT environments consist of two separate infrastructures, SAN and LAN, and each has its own distinct architecture, notes Matt Theurer, senior vice president of solutions architecture at Virtustream (www.virtustream.com). "This type of environment can be difficult to manage when scaling up and often requires two separate administrative groups to maintain," he says. "Converged network fabrics, however, merge SAN and LAN into one infrastructure and have the ability to increase data center efficiency and reduce management costs." He adds that this streamlined environment can double throughput, lower administrative costs, greatly reduce the number of physical hosts, and simplify data center management overall. Enterprises can also save on major budget busters such as

communication networks, underutilized capacity, and too many resources dedicated to managing both SAN and LAN infrastructures. By implementing a converged network, managers can strategically align both under one single administrative group. Converged network fabrics can also be a compelling strategy for enterprises considering a move to a cloud environment, because they reduce the number of physical connections per host, Theurer adds. "By reducing the physical infrastructure and simplifying data center management, converged network fabrics can help position enterprises for a smooth transition to the cloud," he says. Another push toward converging architectures can be an aging SAN switch, Hronek adds. When it comes time to look for replacements to the switch, a converged setup may make the most sense. "The transition can be easy to do, as the converged switches support the normal SAN technologies of Fibre Channel and iSCSI," Hronek says. "So, it normally just means running cables to different places to achieve the new design."

First Steps

Before implementing a converged network fabric, it's important to understand the existing communications network and storage network loads, Theurer advises. Data center managers must understand not only

Key Points

- Bringing SAN and LAN together can lower administrative costs, streamline an IT environment, and simplify data center management.
- Convergence can be a compelling option for enterprises considering a move to a cloud environment, because it reduces the number of physical connections per host.
- Before implementing a converged network fabric, it's important to understand existing communications network and storage network loads and to examine endpoint devices to verify that they can handle potential new load requirements.

converged fabric, you must examine the endpoint devices to verify that they can handle the load," he says. "Storage devices especially can put 'back pressure' on the fabric and source load devices. All of this data will help you determine the end benefit for your particular IT environment." As with any major technology shift, the first step toward convergence is to make a plan. Hronek notes that in addition to knowing what virtualization, speed, and storage requirements are needed now, it's a good idea to look a few years into the

“Converged network fabrics, however, merge SAN and LAN into one infrastructure and have the ability to increase data center efficiency and reduce management costs.”

- Virtustream's Matt Theurer

power and cooling because a converged setup combines switches into one unit. Convergence can also bring faster speeds, adds Mike Hronek, networking solutions architect for CDW (www.cdw.com). "When we are talking about the converged setup, we are almost always talking about 10 gigabits," he says. "Most people moving to this setup are currently only using 1Gb or bonded 1Gb lines to the servers. So the speed benefit will be there from the start." Another benefit is cabling, which often gets overlooked by managers looking at the strategy, Hronek believes. Due to speed, VLANs, redundancy, and SAN links, servers have had eight, 10, 12, or more cables coming out of them. With a converged setup, organizations can do the same thing with just two cables, he notes.

Determining Need

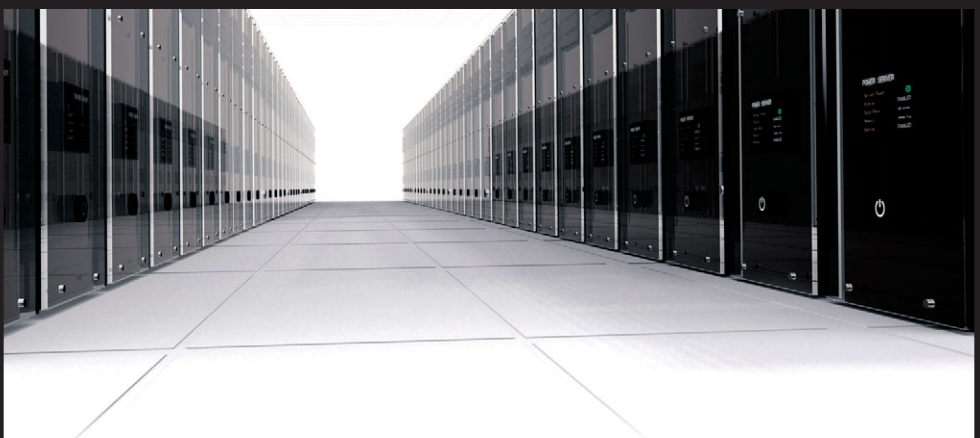
Converged network fabrics can be an ideal solution for enterprises looking to significantly scale up their IT infrastructure, Theurer says. He notes that data centers in traditional IT environments often have complicated

the data transfer rates on both sides, but also the packets per second on the communications side and the input/output operations per second, or I/Ops, on the storage side. "Once you understand the storage and network traffic that will be crossing your

future. "Luckily, many of the converged switches are scalable, but it is good to have an idea of what your data center would look like before doing this," he says. "This way, you don't get a solution that doesn't fit that vision." ■

Common Missteps In Convergence

- Some overlooked factors that can crop up when making the transition to a converged SAN and LAN environment:
- Failing to design for high availability.** On a converged fabric, all data is flowing through a relatively small number of devices. Ensuring a sound, redundant design is critical.
 - Looking only at the next year for needs.** A converged LAN/SAN solution should be in the data center for at least three to five years if done correctly.
 - Not sizing for growing workloads.** This is especially true in a virtualized/cloud infrastructure, and virtual server sprawl compounds the issue. Even in cases where the virtual infrastructure was properly sized and configured for network and disk I/O during the initial deployment, most organizations see dramatic growth in their virtual infrastructure over time.
 - Not understanding the underlying traffic patterns.** Enterprises must analyze data transfer traffic from storage systems and packet transfers from communications systems to determine what additional demands will be placed on the converged network's bandwidth.



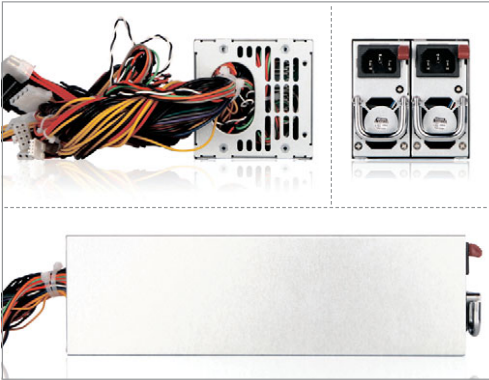
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■ Kundra Warns Of An “IT Cartel”

Federal CIO Vivek Kundra has some strong feelings about the state of IT in the federal government, and recently spoke out on the subject. Kundra, who will be leaving his post this month, warned of the dangers of open data access and of an “IT cartel” of vendors. He says that a small number of companies are benefiting from government contracts, and are doing so because they understand how the procurement process works and can take advantage of that knowledge. He also shared that the U.S. government, now served by 2,000 data centers, would be better served with just three.

■ Juniper Taps Microsoft’s Muglia To Lead Software Strategy

Robert Muglia, formerly Microsoft’s president of Servers and Tools, has been tapped as the coordinator of overall software strategy for Juniper Networks. His official position will be vice president for the Software Solutions Division. Duties in his new position include overseeing Juniper’s “end-to-end software strategy.” The new division will allow the company to consolidate a number of formerly independent software initiatives in order to better integrate those considered vital for the company. It has been this software arm of Juniper’s business that has set the company apart, according to Kevin Johnson, CEO of Juniper.

■ Search Engine Use Affects Memory

Researchers from Harvard, Columbia, and the University of Wisconsin released the study “Google Effects on Memory,” which details the ways in which search engine use limits the amount of information our brains retain. Study results show that because consumers believe information will always be easily at hand through the use of Bing, Google, or others, there is less need to actually remember information. According to researchers, the Internet is a form of external or transactive memory—stored outside the body on the Web or on computer hard drives. All segments of the tests confirmed that when data can be accessed later, people don’t remember it as well.



■ Feds Issue Government Teleworker Security Guidelines

The Office of Management and Budget is stipulating new guidelines as part of the Obama administration’s telework policy. The guidelines deal with protection of external IT systems and safeguarding wireless and other telecommunications capabilities used by federal teleworkers. The guidelines will support activity made possible by the Federal Telework Act of 2010, which codifies activity the federal government is already engaged in. The document itself partners with a 41-page document from April 2011 that deals with how to manage employees who are eligible for telework and take that option. Stipulations are that agencies and departments must control IT systems while the employees work, protecting agency information.

Improve Business Productivity With UC

How Unified Communications Can Alter Your Business Landscape

COMMUNICATION IS KEY to any successful business, but it can ironically serve as a hindrance when employees rely on disparate forms of communication. The concept of UC (unified communications) seeks to bridge the gap between these disparate types by creating a cohesive environment that keeps communications together, regardless of the method. Although UC can boost business productivity through this innovative approach, it remains critical to choose the right UC tools and properly implement them.

“Because there are so many forms of communication used in today’s business environment, employees often find themselves isolated by their own communications and, therefore, hampered from proceeding expeditiously. Productivity is improved when employees have options of how to access information,” says Billie Blair, president and CEO of Change Strategists.

Productivity Pinnacle

Equipping employees with phones, instant messaging clients, email, videoconferencing technologies, and other communication tools seems like a good bet to raise

Key Points

- Unified communications systems allow employees to use various communication methods without becoming isolated from other employees not using the same tools.
- The size and location of business operations plays a crucial role in identifying the right UC system, because not all systems are built or marketed the same.
- Employee input and review is critical to determining the functions of a UC system that work best in a specific business environment.

accounts for the network, email, voice over IP, instant messaging, shared documents, and others. Further, organizations that deploy UC systems can manage access in a centralized location, rather than managing each discrete account for every user.

The Right System

Today’s UC market is teeming with enough choices and technologies to mystify the

“Once UC functionality has been completed, there should also be a process of adding employee feedback to obtain reports of what is working, what is not, what should be added, and what can be deleted or refined.”

- Change Strategists’ Billie Blair

productivity, but lines of communications can get lost if these tools aren’t integrated. According to Jason Wisdom, president and principal of Wisdom Consulting, UC provides access to a wealth of communications through one common interface.

“For the user side, a unified communications system is generally easier to use than half a dozen unrelated technologies—that is, if the user interface is user-friendly,” Wisdom says. “Business processes can be far more clearly articulated, integrated, and standardized. Collaboration is supported where multiple people—often from different groups or countries—can share data, documents, and information without having to rely on vital data that might only be kept in email which expires after 60 days or after somebody leaves.”

For example, Blair explains that voicemail requires specific attention to a multiple-step process that must be completed to retrieve the communication. However, a UC system can integrate voicemail with email, meaning that employees can access messages in a simple step or two, even during meetings. That type of anywhere, anytime access can lead to big improvements in real-time communication throughout a business.

Productivity benefits also extend to the administration side. Wisdom notes that it’s far easier to configure one account on a UC platform than to configure separate

average organization looking to bring UC into its fold. However, a wise first step is to gather in-depth input from employees on what types of access would be useful and what types would amount to costly fluff, Blair says.

“This will require having the IT [team] provide a clear overview of the options and a comparison of what each provides, ease of use, etc.,” Blair says. “Some will be worth the effort of connectivity; others will not. And I would suggest that the IT folks make the options presentation to management before taking it to the employees [because] IT folks often become enamored with the technology and can lose sight of the practicality of usage.”

The size of both the organization and the UC system is an important factor, as well. For example, Wisdom notes that a 10,000-employee organization might need a large-scale UC system, but a 100-person organization will not, and there are companies and products that specialize in small to midsized businesses. He also advises potential UC customers to consider all of their locations, because those with significant European and Asian operations won’t fare well with a UC system that focuses primarily on the North American market.

Eugene Lee, CEO of Socialtext (www.socialtext.com), says that another key to choosing the right tools is integration, because businesses need to choose tools that

will work with their other enterprise applications, mobility ecosystem, company directory, and other elements. “You don’t want your unified communications solutions to be yet another tool people need to use on an island of its own,” Lee says. “Companies need to integrate social networking deeply with enterprise collaboration so that employees can be connected. This gives the context of the who, what, when, where, and why of the people they are working with, building the level of trust they have in each other and increasing teamwork and work quality.”

Focus On Feedback

Perhaps not surprisingly, deploying UC systems in such a way that ensures peak employee productivity relies heavily on a team effort. Blair recommends designating an employee committee that works with the IT team as it begins to bring in the UC technology. As the team adds each connectivity step or mechanism, the committee should implement a testing phase that vets the step or mechanism for functionality, effectiveness, convenience, and other factors.

“Once UC functionality has been completed, there should also be a process of adding employee feedback to obtain reports of what is working, what is not, what should be added, and what can be deleted or refined. And there should be an annual review of the process for the same purpose—adding, deleting, refining,” Blair says.

Although there may be a temptation to use parts of a UC system in some groups or divisions but not others, the primary productivity benefits can be obtained only through a companywide mindset. According to Lee, a UC deployment will bring together certain types of different technologies to create one communications platform. “The way work gets done is by people working with people and tapping into each other’s expertise and leveraging each other’s knowledge and insights,” he says. ■

Do Your Homework

Considering the changes a unified system can bring to an organization’s culture and processes, understanding the need for a system can be as important as selecting the system itself. Jason Wisdom, president and principal of Wisdom Consulting, says that UC systems require a significant installation process that can catch unprepared businesses by surprise. Not only should companies question why a UC solution is necessary and whether its objectives can be covered through other needs, but they should also approach the market with caution.

“This is still an evolving field,” he says. “Many of the brand names are still ramping up their UC offerings and working out the kinks. Don’t feel the rushed frenzy to convert over unless you see significant upside in doing so. I believe unified communications will only become more common and widely accepted in the future. But because this is such a growing field, the top provider three years from now may not even exist today.”

BUYING GUIDE



BUYING TIPS:
Data Center Cleaning Services

CLEANLINESS IS IMPORTANT, and never more so than when talking about your company’s data center. As Rich Hill, president of Data Clean Corp. (www.dataclean.com), points out, “Application of ISO 14644-1, Class 8, and management of coarse and fine particles suggests that a data center should be as clean as possible.” This means that any contracted cleaning service must be equipped to “remove visible contamination for aesthetic value and remove coarse and fine contamination which, if disturbed, could reasonably contribute to excessive airborne contamination,” Hill says.

Experience required. Not all cleaning is created equal. Although janitorial services may do an excellent job of keeping offices and workspaces free of standard-fare workplace debris, they are usually not equipped to clean data centers, an undertaking that requires specialized training and years of experience. “A professional

data center cleaning company will be one that has many years of experience cleaning data centers, utilizes industry standards for cleaning, and can provide assistance with customized maintenance plans for your particular site,” says Kevin Vickery,

Buyers’ Checklist

☒

Get a detailed scope of work.

☒

Require that employees be background-checked and drug-screened.

☒

Check the work in progress periodically.

☒

Do not allow the use of liquids of any kind to clean your data center.

president of ProSource Mission Critical Services (www.team-prosource.com).

Typical services should include sub-floor plenum cleaning, raised floor cleaning, equipment surface cleaning, ceiling cleaning, and subfloor concrete encapsulation. A professional data center cleaning company will be dedicated to providing these kinds of services, whereas even the best janitorial service will not be able to provide them.

Pricing. Hector Gallardo, senior account manager at Plenum Cleaning Services (www.plenumcleaning.com), notes that whereas you can expect to pay from 50 cents to \$1.20 per square foot for professional data center cleaning, few commercial janitorial services could provide those services at any price. Gallardo also cautions against taking the inexpensive way out: “The lowest bid is not necessarily providing the level of service you want and need,” he notes.

Due diligence. Gallardo further recommends asking whether the cleaning company’s workers are full-time employees or contracted temps, requesting a demonstration, and asking for a customer satisfaction guarantee. Keep in mind the following: Get a detailed scope of work, including insurance, equipment, and materials; ask if employees are background-checked and drug-screened; check inside the plenum and on the underside of the access floor tiles for cleanliness; ensure that all tiles are lifted and cleaned on all sides, especially concrete-filled waffle tiles, which often have concrete residue

Key Terms

Airborne contamination. Gaseous and particulate contamination that can lead to equipment failure; often gauged by particulate sampling.

ISO 14644-1. An international standard for cleanrooms and controlled environments.

Particulate migration. The movement of contaminants from one sector or piece of equipment to another, often as a result of the contaminant changing form as it’s crushed and spread.

Plenum. An enclosed space (often beneath floors or in ceilings) used for HVAC, cabling, etc.

from the manufacturer and other contaminants; and do not allow anyone to use liquids (or machines that require liquid) to clean your data center. Last but not least, says Gallardo, be sure to periodically check the work in progress.

Keep it clean. Once your data center is cleaned to your satisfaction, you should do your part to ensure that it stays as clean as possible, Hill says: Don’t allow food or drink in the data center, place contamination control mats at all entrances, and don’t allow dirty carts or materials inside the data center. If drilling inside is necessary, appropriate safeguards must be employed to limit migration of contaminants. **P**

Attention Data Center Professionals

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2009 Broad OS Revenue Up: Overall Software Revenue Down

The good news concerning 2009 U.S. broad software sales is that revenue from the small OS category climbed 35% from 2008's total, according to The NPD Group. The bad news is that, despite the increase, overall revenue of all categories dropped 7% to \$5.2 billion in 2009, although the 7% dip is better than the 10% decrease in 2008. Overall, and volume sank 4% for 2009, while the ASP (average selling price) dipped 2%. Other than Citrix, the business category was the only other to see a gain in unit volume (9%), although that was due in part to a 15% drop in ASPs, causing the category to lose a 10% revenue hit. Only the OS category posted increases in both units (162%) and revenue (25%) for the year, spurred on by new OS releases from Microsoft and Apple during 2009's second half. Elsewhere, the finance category dipped 12% in revenue and 18% in unit volume. The Imaging/Graphics category fell 15% and 8%, and Systems Utilities lost 5% and 6%. According to NPD, the outlook for 2010 calls for similar sales results, with the lack of new OS launches being offset by Office 2010's release.

IBM to Acquire Initiative

IBM is moving forward with the healthcare and government IT sectors with a recently signed agreement to buy Initiative Systems, Chicago-based, privately owned Initiative is a provider of software that facilitates emergency data storage for government entities. Initiative's software also gives healthcare organizations master data management capabilities for patient and clinical data. IBM didn't reveal the financial terms of the deal, acquisition, however, the company did indicate that it would move quickly if plans to close the deal within the first quarter of the year.

1 Tech Reseller Sales On The Rebound

If technology sales to small and mid-sized enterprises are any indication about the sector's financial health, a modest recovery may be underway. The NPD Group's Reseller Tracking Service, which determined that commercial resellers in the United States sold \$1.6 billion in tech goods in December, up about 7% over December 2008. Desktop computers posted the strongest revenue gains (10%), annually, but notebooks topped the greatest increase in units shipped (42%) year over year. NPD believes that end-reseller pricing helped trigger this SME spending behavior and thus into the overall fiscal situation in which small and mid-sized companies currently operate.

Apple Leads North American Mobile Market

December's Mobile Market Report from ABI-MRC, which examines the top handsets and smartphones, found that Apple's iPhone led the fourth quarter of 2009, continuing its lead in the third quarter. In the fourth quarter, the iPhone's share of total handset sales rose to 25.1%, up from 23.1% in the third quarter. The iPhone's share of total handset sales rose to 25.1%, up from 23.1% in the third quarter. The iPhone's share of total handset sales rose to 25.1%, up from 23.1% in the third quarter.

Clear, Robust VoIP

VoIP has been the most recommended it as a low-cost alternative to traditional long-distance phone service. This is especially true when extra features are taken into consideration. Add-on services that previously triggered a la carte fees from service providers, such as call waiting and voice mail, can now be added to a VoIP service with no extra charges. With your company's separate WAN links in one or more ISPs, ClearLink-V can seamlessly route IP-based calls to another connection should any link be interrupted. This failover protection can dramatically improve call reliability. To address the issue of signal quality, Ecessa's ClearLink-V continuously negotiates VoIP sessions with the most bandwidth possible. It does this by bandwidth-anchored VoIP sessions, which can show on network "traffic jams" that can cause jitter. Going even further, the new connection tool every link's latency characteristics before each IP phone call. The connection with the lowest latency wins the telephone traffic, while the higher latency link is reserved for less time-sensitive data packets. The net result is clear voice communications: your enterprise can count on without long phone calls.

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Articles with valuable product overviews and data.

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PRODUCT RELEASES

The Processor Product Releases section includes brief overviews of data center products. All products listed have been released recently, so use this section to get up to date with what's new on the market and the latest products you need.

Active Data Model, Domain Drive Integration, Master Data Quality, Data Interactivity, and Targeted Analytics

IBM's new Active Data Model, Domain Drive Integration, Master Data Quality, Data Interactivity, and Targeted Analytics are the latest additions to the IBM Active Data Model. The new model is designed to help you manage your data more effectively. It includes a new set of tools and services that will help you manage your data more effectively. It includes a new set of tools and services that will help you manage your data more effectively.

IBM's New Active Data Model

IBM's new Active Data Model is designed to help you manage your data more effectively. It includes a new set of tools and services that will help you manage your data more effectively. It includes a new set of tools and services that will help you manage your data more effectively.

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IBM's New Active Data Model




IBM's new Active Data Model is designed to help you manage your data more effectively. It includes a new set of tools and services that will help you manage your data more effectively. It includes a new set of tools and services that will help you manage your data more effectively.

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PROCESSOR

Data Center Cleaning Services

| | | | |
|-------------|---|---|--|
| Product | Controlled Contamination Services | Data Clean | Data-Tec Systems |
| Description | <div><p>Specializing in working with data centers of all sizes, Controlled Contamination Services can clean the most sensitive components to rid your data center of fine particles, residue buildup, and other contaminants. Professionals will clean server rooms with the latest micro-cleaning techniques. Controlled Contamination Services performs background checks on its own employees to ensure that your facilities and equipment are in the right hands.</p><ul style="list-style-type: none">Services for UPS rooms, computer rooms, and network control centersProper cleaning materials reduce electrostatic charges and protect sensitive environmentsCleaning services also disinfect raised floor areas and command centersRemoves dust that air filters can't catch<p>Best For: Data centers with sensitive equipment that needs cleaning.</p></div> <div></div> | <div><p>For more than 30 years, Data Clean has been trusted by thousands of controlled environments worldwide. Data Clean specializes in maintenance and the identification, cleaning, and remediation of contamination that costs you where it counts: reduced productivity, customer satisfaction, downtime, and lost revenue.</p><ul style="list-style-type: none">Specializes in controlled environments: data centers, computer rooms, and cleanroomsFull-service branches located in the United States, Canada, Mexico, Saudi Arabia, and AsiaFlexible scheduling 24/7Dedicated workforce of highly trained and uniformed technicians100% satisfaction guarantee<p>Best For: Data centers that demand detail-oriented cleaning, regular maintenance, and post-construction cleaning.</p></div> <div></div> | <div><p>Data-Tec Systems specializes in servicing a variety of IT-related facilities, including computer rooms, server rooms, print facilities, MDF rooms, item processing rooms, and even general office areas on raised flooring. Data-Tec Systems has been providing maintenance services since 1991 and can care for equipment, tile, subfloor, and access floor cleaning as a complete package. Data-Tec Systems employs trained technicians who know how to manage delicate IT equipment while cleaning data center rooms.</p><ul style="list-style-type: none">Periodic computer room exterior shell cleaningAccess floor tile surface cleaning with pretreated, environmentally safe cleanersSubfloor tack cloth wipe-downAccess floor installation and replacement<p>Best For: Data centers that utilize multiple rooms.</p></div> <div></div> |

| | | | |
|-------------|---|--|--|
| Product | Premier Solutions Co. | ProSource Mission Critical Services | Sealco |
| Description | <div><p>Since 1997, Premier Solutions Co. has provided DCM (Data Center Maintenance) to the industry, gaining a 97% Excellent rating along the way and generating a 99% client retention rate over the past five years. Premier Solutions Co.'s comprehensive approach to DCM eliminates contaminants within your data center environment, protecting your valuable IT assets from the intrusion of particulates such as dust and dirt. Boasting an extensive crew training program, Premier Solutions Co. conforms to ASHRAE TC9 specifications, has adhered to a 100% uptime policy, and has cleaned more than 10 million square feet of data center flooring. We exceed your expectations!</p><ul style="list-style-type: none">Cleans raised floors, subfloors, hardware, and servers, including high-density serversIDF/MDF roomsCeiling tile cleaningGreen Seal-approved productsOnsite cooling/power assessment<p>Best For: Enterprise-level data center operations, colocation companies, and IT operations where security is maintained at the highest levels.</p><p>Contact: (714) 557-5800 www.premiersolutionsco.com</p></div> <div></div> | <div><p>ProSource offers mission-critical data center cleaning services that consist of multitier, time-sequenced preventive maintenance plans for cleaning the data center's subfloor, raised floor, equipment surfaces, and ceiling areas. ProSource also offers subfloor encapsulation that includes an epoxy coating application to prevent subfloor plenum dust. Additionally, ProSource offers many products to help prevent contamination and static build-up in the data center, such as contamination control sticky mats, bypass airflow gromets and blanking panels, antistatic cleaning chemicals, and raised floor supplies.</p><ul style="list-style-type: none">Standard service options include annual, semi-annual, quarterly, and monthly preventive maintenance service plansCustomized plans are available to meet the specific needs of individual facilitiesRaised floor surface cleaning features Pro-Tek and Microfiber Flat Mopping System<p>Best For: Data centers that want to prevent the accumulation of dust and contamination that can cause unwanted downtime.</p></div> <div></div> | <div><p>Sealco specializes in cleaning and maintaining computer rooms and their support equipment. Whether it's post-construction cleaning or a preventive maintenance program, Sealco's services will allow your data center to meet today's environmental needs at an affordable price. Acknowledging the customer's concern for safety and security, all Sealco technicians receive extensive background checks and training in data center operations.</p><ul style="list-style-type: none">26 years in the data center cleaning industryPermanent full-time employees are background-checked and drug-tested both before and during employmentAirSeal bypass airflow programs designed to decrease energy consumption and increase infrastructure capacityFull line of computer room productsZinc whisker remediationNationwide services<p>Best For: Any IT environment that needs cleaning services performed on any scale.</p></div> <div></div> |

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

GCA Services Group

GCA Services Group does more than simply clean your data center; it offers a host of facility maintenance programs suited for the needs of individual data centers. GCA Services also offers custom Green Cleaning to ensure the health and safety of occupants while ensuring that it uses the most environmentally friendly methods available.



- Services adhere to cGMP techniques, IEST Federal Standards, and ISO Cleanroom Operations Standards
- Maintains bio-pharmaceutical, semiconductor, aerospace, bio-safety, chemical, defense, nanotechnology, and optics environments
- Sterile environment cleaning includes decontamination, disinfection, gown room management, lab support services, and more
- The Green Cleaning program provides custodial effectiveness assessments, sustainable cleaning processes, and certified sustainable chemicals while complying with GREENGUARD and offering Green Seal-compliant products

Best For: Environmentally conscious data centers.

Paragon International

Paragon International services more than 30 million square feet of critical environments annually, including medical, pharmaceutical, micro-electronic cleanrooms and data centers. Uniformed, meticulous technicians routinely exceed ISO 14644-1 for cleanrooms and thus help assist clients to cut costs by eliminating downtime. Every staff member is familiar with the hazards associated with critical environments and understands the sensitive nature of data center and clean room equipment. All staff members are trained by an Atlanta-based operations team, and there are employees in place to help with critical environment cleaning across the United States. All chemicals used have been custom-formulated for Paragon and are ESD where necessary. Paragon also offers free mini-audits to help assess the health of your data center and offer suggestions on where improvements can be made.



- Post-construction cleaning, access floor cleaning, disaster recovery, equipment cleaning, and microelectronic equipment decontamination
- ESD concrete sealing using custom formulated sealer
- Pre- and post-cleaning environmental reports and particle counts
- Air cooling efficiency auditing and custom cooling solutions
- Pest and rodent remediation

Best For: Companies with cleanrooms or critical environments of any sort—data centers, pharmaceutical environments, and medical or critical environment manufacturing.

Plenum Cleaning Services

Plenum Cleaning Services cleans data centers, telecom centers, and MDF and IDF rooms, as well as power/electrical rooms in accordance with ISO 14644 standards, without introducing any liquids or scrubbing machines that require liquid. Plenum Cleaning Services can customize a data center cleaning program to meet your business and budgetary needs. Available services include cleaning of plenums, access floor tiles (all sides), access floor frames, vinyl composition tile floors (strip and wax), hardware, equipment, cages, fences, overhead cable trays, lights, furniture, and wall fixtures. The company also offers post data center construction cleaning.



- Improves the static dissipation properties and prolongs the condition of the high-pressure laminate access floor
- Lowers cooling costs by reducing air density and improving air quality by removing 99.999% of dust, pollen, mold, bacteria, and any airborne particles with a size of 0.12 micron or larger
- Prolongs the lifetime of hardware and equipment by maintaining optimal operating conditions, including airflow and temperature
- Improves aesthetics
- Provides unsurpassed service and offers a 100% customer satisfaction guarantee
- References available with written estimate

Best For: Preventing costly downtime related to thermal shutdown as a result of components overheating due to dust and debris buildup.

SPEC-CLEAN

SPEC-CLEAN provides continuous maintenance programs and post-construction specialized cleaning that's based on the needs of your data center or critical environment with flexible scheduling and full-time trained technicians. SPEC-CLEAN services include exterior and interior hardware cleaning, HEPA vacuuming of the subfloor, and reconditioning the surface of raised floor and non-raised floor environments. SPEC-CLEAN also provides environmental follow-up site reports, emergency cleaning, and zinc whisker remediation.



- Complete cleaning of exterior and interior of server cabinets
- HEPA vacuuming takes care of dust on exterior cabinets, monitors, and flat surfaces
- Client walk-throughs to ensure that you're 100% satisfied
- Cleaning solutions used are approved for data centers and mission-critical environments

Best For: Data center managers who like reliable, detail-oriented deep cleaning

Specialty Cleaning Services

Specialty Cleaning Services can effectively clean data centers, while also taking care of cleanroom, industrial lighting, acoustical ceiling tile, and post-construction cleaning. Offering five basic services, Specialty Cleaning Services uses HEPA-filtered vacuums, lint-free dust cloths, and sterile cleaning agents to complete commercial cleaning tasks such as exterior hardware cleaning, top-of-floor cleaning, underfloor plenum cleaning, above-ceiling cleaning, air sampling, and environmental reports.



- Heavy-duty cleaning for post-construction facilities
- Cleanroom sanitation for large facilities
- Water-based, nontoxic cleaning materials for acoustical ceiling tile
- Services are available for scheduled intervals throughout the year

Best For: Data centers that want detailed, hands-on professional cleaning services.

Sterile Environment Technologies

Sterile Environment Technologies is a national leader in data center cleaning that brings cleanroom-level protocols to data centers, computer rooms, server farms, and other sensitive critical and high-tech environments. SET3 can clean data centers of all sizes that require cooling efficiency, maximum uptime, and healthy air for employees. In addition, Sterile Environment Technologies is a highly sought-after consulting and services firm that can audit your facility's needs and provide specific services such as belt debris, zinc needle, and Halon/FM200 remediation services; onsite interior electronics/tape/motherboard decontamination; antistatic subfloor surface sealing; and tacky mat provisioning.



- Provides cleaning services for subfloors, server cabinets, racking, access floors, antistatic wax surfaces, open ceilings, ceiling plenums, and more
- Highly trained and experienced managers and technicians
- Cleanroom-approved chemicals and equipment to ensure the long-term safety and health of your environment

Best For: All critical environments that follow Federal 209E and ISO 14644 standards.

Lack Of Cloud Education Prevents SMBs From Understanding Its Benefits

Small businesses need better education about cloud computing, according to the results of Newtek Business Services' Small Business Authority Market Sentiment Survey. The survey polled 1,000 respondents in June to learn about SMB perception of cloud computing benefits. Almost half (48%) of those surveyed indicated that they don't think cloud computing will help cut overall IT costs, 20% said cloud computing will make a difference, and 32% hadn't yet made a decision.

Barry Sloane, president and CEO of Newtek Business Services and The Small Business Authority, says that the SBA finds it "somewhat



self-serving and interesting that most business owners feel that their data and critical business information is secure." He says he was most surprised by how few small-business owners in the survey believed cloud computing would lessen IT costs.

"We believe most business owners and managers in the small and medium-sized business space do not appreciate what a full, safe, secure, and compliant structure or facility should be," Sloane says. "I think the business owners in many instances are afraid of the unknown as well as the potential cost to pursue this level of security. Most businesses that make an attempt to have critical business data and functions secured would be surprised at how a cloud computing solution could help them and reduce their costs."

Sloane says that a general deficiency of knowledge regarding the advantages of cloud computing is to blame for the belief that a cloud structure won't save money. "It is actually the lack of data and knowledge regarding cloud computing which leads business owners to question the effectiveness or efficiency of cloud computing," Sloane says. "If business owners were educated with IT cost savings and benefits, they would be informed of how the cloud can help reduce their expenses."

Other Findings

The survey also found that owners of small to medium-sized businesses are more likely to choose a Microsoft cloud computing product (42%) than to rely on Apple's iCloud (15%) and Amazon's cloud offering (8%). "The significance is that Microsoft, despite losing some market share and popularity, continues to be the dominant player in the business space and for small business," Sloane says. "Product and branding changes do occur, but over long periods of time."

Which software applications are significant to SMBs in the current market? In order of importance, they are email (43% of respondents); Web applications and e-commerce (26%); sales generation software, CRM, and database management (17%); and storage and backup (14%).

SIX QUICK TIPS

Choose A Data Center Consultant

Get The Best Help For Your Money

RELYING ON CONSULTING SERVICES is sometimes a necessity and not a matter of choice for enterprises that lack IT resources. Even if a lack of money or manpower is not an issue, a consultant can help enterprises complete projects on a much cheaper budget compared to what hiring new staff or extra training would otherwise cost.

However, hiring a consultant does do not come without risks. Between security problems, contractual disputes, and other potential issues, a working relationship with a consultant can go bad very quickly. Here are some ways to use third-party consultants successfully while avoiding common pitfalls.

Know Who Else Might Come To The Party

A consulting firm might pass the selection process with flying colors, but often-times they will later hire third parties to complete work at your enterprise. A crucial question to ask during the hiring process is whether a consultant will outsource any of the work. "Suppose they are outsourcing firewall installations or other [sensitive] data management tasks and are giving the keys to the kingdom to someone else," says Joe Malec, the St. Louis chapter president of ISSA (Information Systems Security Association). "You want to make sure that you know who all the consultants are. You need to be concerned about who might provide access support for the consultant firm and to be able to closely track their activities."

Get A Service-Level Agreement

One way to make sure that a consultant will meet the terms of a work contract while meeting your enterprise's security requirements is to form an SLA (service-level agreement), says Johnnie Konstantas, director of product marketing for the security business unit at Juniper Networks (www.juniper.net).

"SLAs can take the form of a commitment to provide reports of all access activity, weekly or monthly," Konstantas says. "[They can also agree] to restrict their access to certain types of traffic. Options

to inspect and secure allowed traffic should also be scrutinized."

An SLA should also certify that the consultant's work will be regulation-compliant and adhere to all applicable laws and mandates. "If regulatory compliance is part of the set of requirements for the hosted data, then the customer will want to know that any features and services [a consultant] provides can extend to help meet reporting requirements," Konstantas says.

The SLA should also cover a wide range of areas. "An SLA might cover response times to an inquiry and make sure that [outstanding] support questions will not exceed three hours, network availability will be 99.9%, and all access to resources will be restricted to appropriate use," Konstantas says. "Reports should also be provided."

Establish Contingency Plans

The terms of an agreement should specify that the consultant has to fix any problems a contractor might cause by not respecting the agreement. "You cannot expect to be able to fall back on a few simple statements should major work be required after the event, so define the various levels of problems and how these will need to be remedied," says Clive Longbottom, service director for business process facilitation at Quocirca (www.quocirca.com).

The contract should also state that the consultant might need to pay financial damages in the event that the enterprise loses money if the contractor does not respect the contract. Specifying these stipulations in the contract can help to ensure that there are fewer arguments after the event, Longbottom says.

Adding damage clauses to a contract is especially important when dealing with small firms or individual consultants. "A small company or individual will have less capability to be held financially liable for any problems, so insisting on professional indemnity insurance and the level of it is key," Longbottom says.

Provide All The Necessary Info

It can be difficult to find the right balance between disclosing more sensitive

Smartest Tip:

Hire A Consultant Like You Would A New Employee

In many respects, an individual consultant will work in your data center like any in-house admin would. Therefore, it's practical to use a selection process that is close to what is used when hiring a new employee. This is especially important when dealing with consultants who are sole proprietors.

"The real problems start when you look for deep domain expertise that may come from a one-man band or a small limited-liability partnership. Here, I'd advise that every consultant be regarded as a pure independent and that you have to regard each one as if they were an internal employee," says Clive Longbottom, service director for business process facilitation at Quocirca (www.quocirca.com). "You will need to carry out background checks on them, and if they refuse to allow you to do this, then they are not the ones for the job. You will want to see proof of any qualifications they claim and written references from previous projects and be able to talk to firms that they have worked for in the past."

Most Practical Tip:

Get An Audit

The consultant gives an estimate, does the job, and sends the bill. However, no one in the IT department has the expertise to check that the job was done absolutely correctly. One way around this potential conundrum is to hire an auditor who can review the work contract details before the work begins and check that the job meets the terms of agreement once completed. "The capability for the company to have all work checked is key, no matter what the size of organization you are dealing with," Longbottom says. "Being able to call in an external and preferably independent auditor to check work should be built into the contract."

BONUS TIPS

■ **Don't haggle yourself out of quality work.** You might be able to get a consultant to lower fees for a job or get a rebate by being a stickler about the terms of a contract, but being too aggressive when trying to shave costs from a contractor's job can backfire. "The best consultants are often overlooked, and you do need to assure they are focused on your project," says Rob Enderle, principal analyst for the Enderle Group. "Paying them a bit more to assure

they aren't juggling too many accounts rather than negotiating down to a point where they have no choice but to over-commit would be wiser than the penny-wise, pound-foolish decision to do the opposite."

■ **Look at certificates.** Although IT certification is not necessarily a deciding factor, having certifications in the areas related to the job holds some weight. In addition to relevant work experience, certification represents

a minimum benchmark to help judge whether a consultant is qualified for certain tasks. "There are a lot of new technologies, and certification helps demonstrate that they have some learning and an understanding of what is going on," says Joe Malec, the St. Louis chapter president of ISSA (Information Systems Security Association). "If you have certification for specific firewalls, for example, you at least know that they are certified for those appliances."

information than what consultants need to know and preventing them from getting their work done because they do not have all of the information and access to the data center that they require. Despite the risks, however, it's important to make sure consultants have the tools and information they need to do their jobs.

"Often, due to confidentiality rules, consultants are not provided with enough information to make well-founded decisions, and the end result can be worse than if a well-informed but less qualified employee made the call," says Rob Enderle, principal analyst for the Enderle Group. "It is important to realize that the effectiveness of the consultant is tied tightly to how much critical information they are given access to." P

Outsourcing As An Opportunity

Fear Of Job Loss May Be Misplaced, But Outsourcing Does Require A New Mindset

AS MORE AND MORE DATA processes and applications are getting outsourced to colocation facilities and SaaS and cloud providers, plenty of IT people, already stressed about the current economy and downsizing within their organizations, worry it’s only a matter of time before their own jobs get outsourced.

Benjamin Pring, vice president at research firm Gartner, says that many CIOs and other IT professionals are using financial or capability analyses to justify the status quo, their own roles, and their own cost space. “What am I going to do if somebody else is going to manage the servers and my job is running the servers? If we replace our CRM application with Salesforce.com, the one I used to support?” Those questions are very much in people’s minds,” Pring says.

But much of this fear may be misplaced. According to Pring, outsourcing has the potential to free IT and data center managers from having to slog through routine processes. Moreover, SMEs will still require IT support, no matter how much they have outsourced, just to manage and integrate these disparate resources.

Nevertheless, you may need to alter your mindset if you want to leverage outsourcing to your advantage.

What vs. How

Laef Olson, CIO at RightNow (www.rightnow.com), previously worked as CIO of travel Web site Orbitz, which used several cloud-based solutions to handle commodity tasks. “At the end of the day we [Orbitz] were going to build our own air, car, and hotel booking engine. Our ability to use cloud solutions let us focus our

acknowledges that most IT leaders and staff need to overcome psychological barriers to outsourcing. “Most of us are server huggers. We like to see our servers, touch them, power them up, and do that kind of stuff, even though we aren’t really in the server room that much,” Stahl says.

But with colocation, for example, you now have to learn how to manage that vendor. “Instead of ready, fire, aim, it’s now ready, aim, and fire because you need to schedule your changes through that intermediary,” Stahl says, adding that doing so causes most organizations to improve their processes.

But Stahl warns against IT departments going to the opposite extreme and assuming that they can ignore anything they have outsourced. “That’s just not true. Even if you’ve given daily operations tasks over to a vendor, you’re ultimately responsible for the performance, uptime, and security of your [system],” he says. “Communicating upcoming changes with that vendor [and] holding them accountable requires a higher order of skills than just being the best geek with the cleanest T-shirt in the room.”

Making Sense Of The Mundane

Outsourcing servers, applications, or certain other processes does make sense from an IT perspective. “Cloud solutions can bring higher levels of service than you would normally be able to afford, given your corporate priorities,” Olson says.

In addition, outsourcers can scale services in a way that companies usually can’t match. “If you have a spike in traffic, you may not have maintained enough capacity on-premises to deal with that, but for most cloud providers,

Key Points

- Organizations care more about *what* IT is providing than *how* it is being provided.
- Outsourced solutions usually can offer higher-quality, more efficient services than even a large enterprise can provide on-premises.
- To benefit from outsourcing, you need to learn new skills and use available time and resources to bring value to your business.

“The expectations of your users and customers is that your infrastructure is going to be up 24/7, which if you’re a small IT shop, makes for a long day,” Stahl says. “By having an outsource provider handle some of those basic processes, you buy back time in your day to work on new applications and services unique to your business.”

The New IT Model

According to Stahl, outsourcing not only lets you bring innovative technologies to your business, it frees up time to improve efficiencies in ways you previously could not focus on. For example, a data center manager may have accumulated help desk tickets and dealt with several recurring failures in a certain area. “Now you have the time to figure out the root cause of those tickets and fix it, which makes your users happier and keeps your business up and running,” Stahl says.

And as long as you view the increased use of outsourcing as a catalyst to develop new skills, including such non-technical ones as vendor management, your job may turn out to be more integral than you previously envisioned.

“Realistically, there will be more pressure on internal IT people to rescale, upscale, and develop new capabilities, so you need to be aware that the water is getting hotter and not find yourself overtaken by boiling water in a few years’ time,” Pring says. “But then that’s the nature of life in competitive market conditions.”

Start With Colocation

Info-Tech analyst Darin Stahl says that SMEs often start outsourcing through colocation because continually upgrading equipment can be expensive and time-consuming and because colocation facilities typically offer access to better data communications and multi-homing than SMEs can provide in-house.

“[The SME] may still own and manage the equipment, but they’re no longer the directable screwdriver,” Stahl says. “Although they’re still essentially responsible, somebody else is now pressing the big red button to reset [the hardware].”

Outsourcing not only lets you bring innovative technologies to your business, it frees up time to improve efficiencies in ways you previously could not focus on.

RIM Cuts 2,000 Jobs

BlackBerry maker Research In Motion announced that it will cut 2,000 jobs, many in the United States. The job cuts will likely offset the company’s lackluster sales in the U.S., where consumers prefer Apple’s iPhone and Android-based smartphones. The company says it will shift senior administrative roles within the company and will eliminate redundancies. Shortly after this announcement, the company’s COO announced his retirement. As RIM shares continue to flounder, the company released a statement saying it will reallocate resources, focusing on the highest growth opportunities. All affected employees were said to have been notified within a week of the announcement, which will affect about 10% of the company globally.



Botnet Seems Indestructible, Infects 4.5 Million

TDL-4, a botnet that has already infected 4.5 million PCs worldwide, has been called practically indestructible by Web security researchers at Kaspersky Labs. The botnet is said to be using the most sophisticated malware technology that exists today. The malware is practically undetectable on a PC, as the botnet uses a rootkit to hide out on users’ systems. Simply removing the malware after detection also proved to be a difficult task. Peer-to-peer file-sharing networks have been exploited, as well as several other rogue sites, by the TDL-4 botnet. The majority of infected PCs are located in the United States.

Intel Profits Beat Expectations

Intel reported stronger-than-expected results, thanks to increased sales to business customers that are updating their data centers to keep up with cloud computing demands. Intel’s net income rose 2% to \$2.95 billion; revenue increased 21% to \$13 billion. Data center sales grew 15%, and PC sales grew 11%, despite reports that the PC market is weakening due to increased tablet sales. CEO Paul Otellini says he expects the company’s revenue to grow in the mid-20% range for the year, and Intel told investors to expect revenue of \$14 billion for the current quarter.

Intel Names New Chairman

Intel announced that Andy Bryant will become the company’s new chairman next May. Bryant joined Intel in 1981 and served as the company’s CFO for 13 years; he is currently the chief administrative officer. To prepare for the transition, Intel’s board elected Bryant to the new position of vice chairman of the board, where he will serve with current chairman Jane Shaw. Shaw will retire from the board of directors next May, and Intel’s board is expected to elect Bryant chairman at its annual meeting that month.

IaaS Market Increase Predicted

In-Stat researchers forecast a boost in the IaaS (infrastructure-as-a-service) market in the next four years—predicting it will reach \$4 billion by 2015. Cloud applications have continually grown in popularity, and In-Stat predicts small businesses in particular will likely adopt IaaS solutions, as it is the fastest-growing segment today. In-Stat says the small business segment will increase public cloud spending from \$2.1 billion in 2010 to \$6.6 billion in 2015. According to the research, all public cloud computing, including IaaS, SaaS (software as a service), and PaaS (platform as a service), will grow 153% by 2015.

Layoffs Slowing; IT Leads In Hiring

Despite increases in company downsizing in the United States over the past couple of months, the overall midyear pace of layoffs is the lowest since 2000, according to global outplacement consultancy Challenger, Gray & Christmas in its latest report on job cut activity among American businesses.

There have been 245,806 announced layoffs thus far in 2011, with the state of California (35,114 job losses) and the government sector (77,591) taking the top spots for states and industries, respectively. Also of note is a spike in Aerospace/Defense cutbacks, partly due to the end of the Space Shuttle program at NASA. So far this year, the sector is turning loose 20,857 workers as compared to 6,121 last year.

That said, according to CEO John Challenger, “The tech sector, particularly in California, is doing very well.”

IT-related sectors fared better than many in the midyear U.S. job cut tally. The Electronics sector was 14th in overall reductions with 1,048 job cuts. Computer jobs fared better in 16th place, with 877 severances. Finally, the Telecommunications sector has shed just 480 jobs to come in at the 20th position.



The IT sectors also ranked highly in announced hiring plans. The Electronics category plans to add 2,900 positions, topping all sectors in overall hiring intentions. The Computer sector came in second with a pledge to add 2,318 to its headcount. Telecommunications took fourth place with 1,500 hires slated.

“If they haven’t already, some tech firms may run into supply-chain issues resulting from the earthquake in Japan,” Challenger notes. “But, the impact on hiring should be minimal. Employment gains in the sector should continue to be steady, particularly for top performers with in-demand skills.”

Going Forward

At press time, the uncertainty surrounding the national debt ceiling was the biggest factor looming over the recovery, according to Challenger. “However, it would take a pretty significant shock to ignite a sudden surge in layoffs,” he says. “The biggest risk is continued weakness in hiring, which makes it very difficult for the recovery to gain any momentum. We are approaching the tipping point in this recovery.”

The CEO advises SMEs to appraise their policies regarding employee retention. “Now is definitely the time to review your retention strategies to ensure that you hold on to your best talent going forward,” he says. “Not only are other companies starting to eye your workers as potential candidates, but your best workers may be starting to explore their options with other employers.”

The Benefits & Challenges Of EHRs

How Electronic Health Records Are Impacting Health-Based Data Centers

DEPENDING ON WHOM YOU ASK, EHR (electronic health record) systems can cause major IT headaches, but they can also provide clinical and financial benefits. Some users might complain to IT managers about the effectiveness of EHR systems, while others praise the systems because they make their jobs much easier and promote better patient care. Either way, EHR systems are being implemented around the world, and they are impacting data centers at health institutions. But where are we

Key Points

- EHR (electronic health record) information sharing will improve quality of care, reduce duplication and costs, and improve patient safety and security. But these benefits will take time to materialize and require that providers be incentivized to install and adopt EHRs.
- Managing data is a challenge that will continue to grow over time as other care providers make the transition to digital records. Managers must cope with the security and access requirements that emerge with digitized medical records.
- According to a Dell survey, 83% of hospital executives have either fully implemented or are in the process of implementing an EHR system that is compliant with meaningful use standards.

sitting with implementation? And what are the biggest challenges healthcare data center and IT managers are facing?

The Benefits

Dave Marchand, CSO for Dell Services Healthcare (www.dell.com), says EHRs are benefitting health care in many ways. “The top priority for any patient-related technology is to improve overall quality of care. One of the most important benefits of EHRs is the ability to prevent small human errors that can cause major medical mistakes. Another major benefit of EHRs is the ability to prevent duplication of tests by allowing for the sharing of information between hospitals, physicians, labs and specialists, Marchand says.”

Yet another key benefit of EHRs, says Marchand, is their portability. He adds, “Doctors and nurses can now quickly and securely upload important patient information via mobile devices that fit into their lab coat pockets or through thin-client devices that are connected to the network virtually.”

Rick Ratliff, connected health lead with Accenture Health (www.accenture.com), says EHRs enable new strategies in care management, fostering higher-quality, more efficient, and less expensive patient care. Ratliff notes, “As more and more data is generated and connected within an EHR system, providers will be empowered to better manage specific patient populations.”

Can’t Wait

The major reasons EHR implementations can’t wait goes back to the benefits, says Marchand. “EHRs and the information sharing they enable will improve quality of care,

reduce duplication and costs, and improve patient safety and security. However, these benefits will take time to materialize and require that providers be incentivized to install and adopt EHRs,” he says.

According to Ratliff, the HITECH Act (Health Information Technology for Economic and Clinical Health, part of the American Reinvestment and Recovery Act of 2009) dictates that U.S. hospitals must implement and demonstrate what is called “meaningful use” of electronic medical records by 2015. “The act requires healthcare organizations to hit measurable EMR [electronic medical records] benchmarks to qualify for incentive payments—and to avoid stiff penalties,” Ratliff says. “Beyond technology implementation, meaningful use requires 75% of hospital clinicians to demonstrate consistent use of advanced EMR components, including computerized physician order entry, physician documentation, and closed-loop administration.”

Ratliff says EMR strategies represent a huge IT infrastructure effort, and the meaningful use requirement raises the stakes even higher for hospital leaders and health care. He says by Accenture’s estimates, nearly 90% of hospitals over the next three years will invest to install or upgrade their EMRs in an attempt to meet the government’s meaningful use requirements.

Impacting Data Centers

The growth in electronic-based healthcare information that needs to be stored digitally is absolutely affecting data centers, in Marchand’s opinion. “When you think about the amount of data generated through digital imaging technology, pathology records, and EHRs, just to name a few, you’re looking at an explosion of data storage and sharing requirements that data center managers must address,” he says. “Consider medical imaging data as an example: This data is projected to increase from 28% of all data in 2010 to 35% of all data in 2015 [according to ESG Research Report].”

Marchand continues, “Managing data is a challenge that is difficult today, but one that will also continue to grow over time as more doctors and other care providers make the transition to digital records. Managers must also cope with the security and access requirements that emerge with digitized medical records.” He says healthcare providers will want enhanced and remote access, and patients will want

to ensure their medical information is safe and secure—whether in the doctor’s office or at the hospital or laboratory.

Ratliff says that although Accenture has not conducted research on the specific impact to data centers, the company estimates that transitioning to an EMR system averages an 80% increase in IT operating expenses. “By Accenture’s estimates, roughly half of U.S. hospitals are at risk of incurring penalties when enforcement begins in 2015,” he adds.

Implementation Challenges

Last fall, Dell conducted a survey of hospital executives, of which 83% had either fully implemented or were in the process of implementing an EHR that was compliant with meaningful use standards. In fact, Marchand says there are very few hospitals that aren’t moving toward implementation at this time. “According to a senior executive/IT executive study conducted earlier this year by HIMSS (Healthcare Information and Management Systems Society), only 2% of respondents have failed to begin planning to use an EHR [system],” he says.

Marchand says that although not everyone has reached the point of full or partial implementation, most hospitals are at least evaluating their options. “We are also seeing physician groups, both large and small, asking more questions about implementation processes and beginning to make purchase decisions,” he says.

In addition, Marchand says that focusing on training and support is an important step in the implementation process. “Sometimes the ‘people’ side can be more challenging than the technical side because introducing a new technology requires a behavioral change. Healthcare providers have many demands on their time, and it requires an additional time commitment to learn a new technology,” he says.

Marchand says, like providers, IT managers also have many demands on their time. In addition to managing their daily tasks on a limited budget, they have to ensure the healthcare facility is meeting compliance requirements. Therefore, IT managers need to be provided with options to meet their organizations’ specific needs, whether building or refreshing infrastructure onsite, or providing offsite solutions that alleviate the burden placed upon managers, allowing them to focus on other pressing demands. ■

Biggest Challenges

Here are the biggest EHR (electronic health record) challenges healthcare data center and IT managers are facing, as presented by Rick Ratliff, connected health lead with Accenture Health (www.accenture.com).

Planning. Accenture estimates healthcare organizations underestimate the time and cost of implementing EMR systems as much as 100%, in some cases.

Health IT talent shortage. Healthcare organizations are experiencing a significant shortage of qualified IT professionals to meet the demand associated with EMR implementation and support.

Creating a culture to support EMR/EHR adoption. IT managers need to ensure 75% of clinicians are actively using advanced health IT effectively.

USED & REFURBISHED EQUIPMENT SPOTLIGHT

Counterfeit Concerns

Careful Shopping & Research Are Required To Sidestep Potential Problems

ALTHOUGH BUYING USED or refurbished equipment can be a great way to get good gear while keeping costs down, it can also be a treacherous experience thanks to counterfeiting. It's been reported that fake chips, routers, network modules, and other hardware cost the IT industry as much as \$100 billion per year, but there are ways to protect yourself and your company from getting bogus goods.

Keep a close eye out. Hardware equipment is especially at risk for counterfeiting, especially that with recognizable, higher-margin brand names. Because of the goodwill built up by those companies, counterfeiters don't mind investing more money into making good fakes, according to Joyce Tang, a principal consultant with CompTIA Security+ (www.comptia.org). "It's not as easy to spot these fakes, particularly if they're branded as refurbished and packaged in generic boxes or bulk plastic casings instead of original packaging," Tang says.

For those that are branded as new and are in their original packaging, Tang says, pay close attention to the quality of the printing and check for spelling errors. Typos and poor printing quality should be a hint.

Know who you're dealing with. Another reliable hedge against receiving counterfeit

equipment is plain old legwork: Researching distributors and retailers can go a long way in keeping from getting burned.

"Make sure you're buying from a reputable company that's been in business awhile," says Joshua Levitt, managing director of UsedCisco.com. "That might seem obvious, but you'd be surprised at how many companies don't do that bit of due diligence. Get references and make sure they stand behind their product, including warranties."

"Researching the reputation of the seller is [priority] No. 1," agrees Rob Holmes, CEO of IPCybercrime.com. "Most companies that sell refurbished equipment have an eBay store. The nice thing about those is that they're reputation-based. I've bought some refurb product for my business, and if a company has an eBay store, it gives you a chance to check out what customers think of them."

For the extra-cautious, however, steering clear of even a regulated but far from foolproof retail environment such as eBay might be worthwhile, says Levitt. "You can always report [counterfeit sales] to the authorities, but if you bought it on eBay or someplace similar, you're buying at your own risk to an extent," he says.

Know the risks and recourses. Unfortunately for customers, in many cases there's little recourse once a counterfeit component has been discovered, aside from junking it and being more careful next time. You can still request a refund from the vendor if the product's bogus

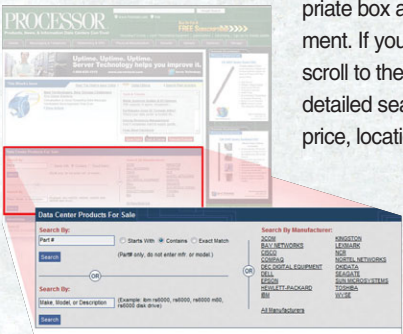
status is detected early enough; if the vendor is an honest seller that unwittingly got stuck with bad gear, they will sometimes take the loss to keep your business.

However, says Tang, it may be months before you may run into mysterious stability issues and degraded performance from a counterfeit piece of equipment. "Often times, they still don't know it's a fake," she says. "With low-volume purchases, there's almost hardly any recourse, [but] with high-volume purchases where the source of the counterfeiter or a retailer of counterfeit products can be traced, the FBI may then get involved." ■

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Aug. 16
aitpspringfield.org

VMware User Group
Aug. 16, 8 a.m. to noon
Platform Labs
1275 Kinnear Road
Columbus, Ohio
www.platformlab.org

**ISSA
Northern Virginia**
Aug. 18, 5:30 p.m.
issa-nova.org

**AITP
St. Louis**
Aug. 25, 5:30 p.m.
Crowne Plaza Clayton
7750 Carondelet Ave.
St. Louis, Mo.
stlouisaityp.org

**Data Connectors
Pittsburgh
Tech-Security Conference**
Aug. 25
Pittsburgh Marriott City Center
112 Washington Place
Pittsburgh, Pa.
www.dataconnectors.com
/events/2011/08Pittsburgh/inv_ex.asp

**Search Optimization Series:
Google Analytics**
Aug. 31, 10 to 11:30 a.m.
New Horizons Cincinnati
10653 Techwoods Circle
Cincinnati, Ohio
tinyurl.com/nhcincinnati06-29

SEPTEMBER

CISSP
Sept. 1, 5:30 to 8:30 p.m.
Platform Labs
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Columbus, Ohio
www.platformlab.org

**Central Plains
ISSA**
Sept. 2, 1 p.m.
Wichita Marriott Restaurant
9100 E. Corporate Hills Drive
Wichita, Kan.
issa-cp.org

**AITP
Research Triangle Park**
Sept. 8
University Club
4200 Hillsboro St.
Raleigh, N.C.
www.rtp-aitp.org

**Data Connectors
Dallas Tech-Security
Conference**
Sept. 8
CHG Cityplace Conference Center
2711 N. Haskell, Suite 100
Dallas, Texas
www.dataconnectors.com
/events/2011/09dallas/inv_ex.asp

Data Center World
Sept. 11 to 14
Orlando World Center Marriott
Orlando, Fla.
www.datacenterworld.com

Cloud Computing User Group
Sept. 12
Platform Labs
1275 Kinnear Road
Columbus, Ohio
www.platformlab.org

**AFCOM
Central Texas**
Sept. 15, 11:30 a.m. to 1:30 p.m.
Marie Callender's Restaurant
9503 Research Blvd.
Austin, Texas
www.afcom.com/afcomnew
/CentralTexas.HTML

**Data Connectors
Washington, D.C.,
Tech-Security Conference**
Sept. 15
Washington, D.C.
www.dataconnectors.com
/events/2011/09WashingtonDC
/agenda.asp

ISSA Northern Virginia
Sept. 15, 5:30 p.m.
issa-nova.org

SIM Minnesota
Sept. 15, 2:30 p.m.
Northland Inn
7025 Northland Drive N.
Minneapolis, Minn.
www.simnet.org

BICSI Fall Conference
Sept. 18-22
MGM Grand Hotel & Convention
Center
Las Vegas, Nev.
www.bicsi.org/fall/2011

**AITP
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Sept. 20
aitpokc.org

**AITP
Southwest Missouri**
Sept. 20
aitpspringfield.org

AFCOM Central Texas
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**AITP
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Sept. 22, 5:30 p.m.
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St. Louis, Mo.
stlouisaityp.org

**AITP
Akron**
Sept. 27
356 Fighter Group Restaurant
4919 Mt. Pleasant Road
North Canton, Ohio
www.akron-aitp.org/index.htm

**Data Connectors
New York Tech-Security
Conference**
Sept. 29
Bridgewaters
11 Fulton St.
New York, N.Y.
www.dataconnectors.com
/events/2011/09NewYork/inv_ex.asp

OCTOBER

Interop
Oct. 3 to 7
Javits Convention Center
New York, N.Y.
www.interop.com

VMware SLED
Oct. 6
Platform Labs
1275 Kinnear Road
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www.platformlab.org

**Central Plains
ISSA**
Oct. 7, 1 p.m.
Wichita Marriott Restaurant
9100 E. Corporate Hills Drive
Wichita, Kan.
issa-cp.org

**AITP
Research Triangle Park**
Oct. 13
University Club
4200 Hillsboro St.
Raleigh, N.C.
www.rtp-aitp.org

**Data Connectors
Columbus Tech-Security
Conference**
Oct. 13
Quest Conference Centers
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Columbus, Ohio
www.dataconnectors.com
/events/2011/10Columbus/inv_ex.asp

AITP Oklahoma City
Oct. 18
aitpokc.org

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PMI Group
Oct. 19
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Atlanta Tech-Security
Conference**
Oct. 20
Atlanta, Ga.
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/events/2011/10Atlanta/agenda.asp

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Virtualization Saves Energy & Money, But At A Cost:

Anticipated Energy Reduction May Require Additional Planning & Expense

WE ALL KNOW about the upside of virtualization—the industry is abuzz with pundits and techies talking animatedly about how much energy, space, and money can be saved by going virtual. Jeff Nessen, practice director of platform virtualization at Logicalis (www.logicalis.com), points out some of the potential gains: “Data center efficiency can be dramatically improved by virtualizing existing servers, consolidating and optimizing the number of servers handling a company’s workload,” he says. “By increasing the utilization of each individual server, we reduce the overall number of servers required, and that large reduction in the number of servers, sometimes up to 95%, reduces the overall power consumption and heat generation.”

A 2009 VMware white paper pointed out that benefits of virtualization include a reduction in administrative costs, a reduction of the likelihood of outages, an increase in application availability, reduced real estate requirements, and drastically shorter disaster recovery times.

Gains Are Not Without Costs

Indeed, IT and data center staff across the board are reporting real advantages to be gained by improving scalability and better utilizing physical servers that have historically been underutilized. But the laws of physics are immutable, and there is a price to be paid for those gains.

As a 2011 Info-Tech report points out, all renovation projects tend to escalate, and data center projects are no exception. That’s especially true when virtualization is part of the project. “The

implementation of virtualization is often a trigger for a cooling renovation,” says the report, noting that “high-density environments require highly efficient precision cooling.”

According to engineer Don Beaty, president of DLB Associates (www.dlbassociates.com) and first chair of ASHRAE TC 9.9, physics cannot be cheated, and there is no gain without a corresponding cost. “Virtualization results in a reduction of physical servers but also an increased workload on the servers that host the virtualization,” Beaty says. “For example, prior to virtualization, a rack may have a load of 3kW, but after becoming a host to virtualization, the load on that rack may be 10kW or more.”

Planning for that increased load and for ways to dissipate the heat generated by that load often falls short. “The power and cooling to the rack may have

been fine at 3kW but may not be at 10kW,” Beaty says. “Unless an expert has confirmed that the rack power and cooling service can handle 10kW, there can be some concern over the risk of consolidating the servers only to find that the virtualized rack cannot handle the larger workload.” If that happens, you’ve just “improved” yourself into a serious dilemma: The improvement on one side of the equation results in an increased load on another part, a load for which you may not have planned.

The need for (perhaps unforeseen) changes in cooling infrastructure can mean that upfront planning and detailed project scoping are needed in order to prevent a cascading effect on data center renovation projects. And that cascade can spread to other areas of the data center, thus increasing overall project size, scope, and cost.

Anticipate Problems & Plan Ahead

Other potential issues abound, of course: a virtual server sprawl akin to the physical sprawl being replaced in the data center, some genuinely confusing licensing issues, increased network complexity, and the need for high-end hardware to handle

multiple virtual servers all come to mind. (Consulting firm Gartner has even documented some instances of increased staffing requirements, rather than the expected decrease in staffing that one might anticipate with virtualization.)

As Beaty and other experts note, it all comes down to planning. There’s much to be gained by virtualizing the data center, but thorough planning is necessary if you’re to avoid any nasty (and potentially expensive) surprises. **P**



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